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WRITINGS ON ARCHEOLOGY.

BY CLARENCE B. MOORE.

- Certain Shell Heaps of the St. Johns River, Florida, hitherto unexplored. *The American Naturalist*, Nov., 1892, to Jany., 1894, inclusive. Five papers with illustrations in text, and maps.
- Certain Sand Mounds of the St. Johns River, Florida, Parts I and II. *Journal of the Academy of Natural Sciences of Philadelphia*, Philadelphia, 1894. Vol. X. Quarto, 130 and 123 pages. Frontispieces, maps, plates, illustrations in the text.
- Certain Sand Mounds of Duval County, Florida; Two Mounds on Murphy Island, Florida; Certain Sand Mounds of the Ocklawaha River, Florida. *Journ. Acad. Nat. Sci. of Phila.*, 1895. Vol. X. Quarto, 108 pages. Frontispiece, maps, plates, illustrations in text.
- Additional Mounds of Duval and of Clay Counties, Florida; Mound Investigation on the East Coast of Florida; Certain Florida Coast Mounds north of the St. Johns River. Privately printed, Philadelphia, 1896. Quarto, 30 pages. Map, plates, illustrations in text.
- Certain Aboriginal Mounds of the Georgia Coast. *Journ. Acad. Nat. Sci. of Phila.*, 1897. Vol. XI. Quarto, 144 pages. Frontispiece, map, plates, illustrations in text.
- Certain Aboriginal Mounds of the Coast of South Carolina; Certain Aboriginal Mounds of the Savannah River; Certain Aboriginal Mounds of the Altamaha River; Recent Acquisitions; A Cache of Pendent Ornaments. *Journ. Acad. Nat. Sci. of Phila.*, 1898. Vol. XI. Quarto, 48 pages. Frontispiece, maps, illustrations in text.
- Certain Aboriginal Remains of the Alabama River. *Journ. Acad. Nat. Sci. of Phila.*, 1899. Vol. XI. Quarto, 62 pages. Map, illustrations in text.
- Certain Antiquities of the Florida West-Coast. *Journ. Acad. Nat. Sci. of Phila.*, 1900. Vol. XI. Quarto, 46 pages. Maps, illustrations in text.
- Certain Aboriginal Remains of the Northwest Florida Coast, Part I; Certain Aboriginal Remains of the Tombigbee River. *Journ. Acad. Nat. Sci. of Phila.*, 1901. Vol. XI. Quarto, 100 pages. Maps, illustrations in text.
- Certain Aboriginal Remains of the Northwest Florida Coast, Part II. *Journ. Acad. Nat. Sci. of Phila.*, 1902. Vol. XII. Quarto, 235 pages. Maps, illustrations in text.
- Certain Aboriginal Mounds of the Central Florida West-Coast; Certain Aboriginal Mounds of the Apalachicola River. *Journ. Acad. Nat. Sci. of Phila.*, 1903. Vol. XII. Quarto, 136 pages. Maps, illustrations in text.
- Sheet-copper from the Mounds is not Necessarily of European Origin. *American Anthropologist*, Jan.-March, 1903. Plates in text.
- The So-called "Hoe-shaped Implement." *American Anthropologist*, July-Sept., 1903. Illustrations in text.
- Aboriginal Urn-burial in the United States. *American Anthropologist*, Oct.-Dec., 1904. Plate.
- A Form of Urn-burial on Mobile Bay. *American Anthropologist*, Jan.-March, 1905.
- Certain Aboriginal Remains of the Black Warrior River [Moundville]; Certain Aboriginal Remains of the Lower Tombigbee River; Certain Aboriginal Remains of Mobile Bay and Mississippi Sound; Miscellaneous Investigation in Florida. *Journ. Acad. Nat. Sci. of Phila.*, 1905. Vol. XIII. Quarto, 206 pages. Maps, illustrations in text.
- Moundville Revisited; Crystal River Revisited; Mounds of the Lower Chattahoochee and Lower Flint Rivers; Notes on the Ten Thousand Islands, Florida. *Journ. Acad. Nat. Sci. of Phila.*, 1907. Vol. XIII. Quarto, 144 pages. Maps, illustrations in text.
- Certain Mounds of Arkansas and of Mississippi (including Doctor Hrdlička's paper on the Crania). *Journ. Acad. Nat. Sci. of Phila.*, 1908. Vol. XIII. Quarto, 130 pages. Maps, illustrations in text, eight colored plates.
- Antiquities of the Ouachita Valley. *Journ. Acad. Nat. Sci. of Phila.*, 1909. Vol. XIV. Quarto, 170 pages. Maps, illustrations in text, eight colored plates. (In addition in this number is Doctor Hrdlička's paper on the skeletal remains.)
- Antiquities of the St. Francis, White, and Black Rivers. *Journ. Acad. Nat. Sci. of Phila.*, 1910. Vol. XIV. Quarto, 112 pages. Maps, illustrations in text, twenty colored plates.
- Some Aboriginal Sites on Mississippi River. *Journ. Acad. Nat. Sci. of Phila.*, 1911. Vol. XIV. Quarto, 116 pages. Map, illustrations in text, eight colored plates.
- Some Aboriginal Sites on Red River. *Journ. Acad. Nat. Sci. of Phila.*, 1912. Vol. XIV. Quarto, 163 pages. Map, plans, illustrations in text, eight colored plates.
- Some Aboriginal Sites in Louisiana and in Arkansas. (Atchafalaya River, Lake Larto, Tensas River, Bayou Maçon, Bayou D'Arbonne, in Louisiana; Saline River, in Arkansas.) *Journ. Acad. Nat. Sci. of Phila.*, 1913. Vol. XVI. Quarto, 102 pages. Maps, plans, illustrations in text, two colored plates.
- Aboriginal Sites on Tennessee River. *Journ. Acad. Nat. Sci. of Phila.*, 1915. Vol. XVI. Quarto, 258 pages. Maps, plans, illustrations in text, four colored plates.

SOME ABORIGINAL SITES ON GREEN
RIVER, KENTUCKY

CERTAIN ABORIGINAL SITES ON
LOWER OHIO RIVER

ADDITIONAL INVESTIGATION ON
MISSISSIPPI RIVER

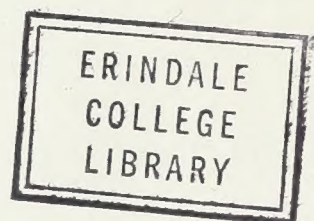
BY

CLARENCE B. MOORE

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SOME ABORIGINAL SITES ON GREEN RIVER, KENTUCKY.
CERTAIN ABORIGINAL SITES ON LOWER OHIO RIVER.
ADDITIONAL INVESTIGATION ON MISSISSIPPI RIVER.

BY CLARENCE B. MOORE.

INTRODUCTION.

Green river, having its source in central Kentucky, runs westwardly to its junction with Barren river,¹ after which its general course is westward and northward until its union with Ohio river, a few miles above the city of Evansville, Indiana, which is, as we know, across the Ohio.

Green river, which, with the aid of a series of dams and locks, is navigable as far up as Mammoth Cave, 196 miles following the course of the stream, was to that place searched carefully in advance of our visit, by J. S. Raybon, captain of our steamer, and a companion, and was gone over by our expedition ascending to Mammoth Cave and descending. The time devoted by us to this work, addresses of owners of properties and permission to dig having been obtained in advance, was nine weeks of the fall and winter of 1915-1916, the remainder of nearly five months being devoted to rather profitless work on Ohio and Mississippi rivers.

There has been no systematic search along Green river preceding our own, though some digging has been done, probably through local endeavor.

The river was dammed and locked about 1830, and the land bordering that part visited by us is cultivated throughout, so that such mounds and other sites as there are on the river have been known for a long time. The mounds are small and sometimes are used as sites for pens for stock; some are composed of masses of rock and of clay—usually an unproductive kind from an archæological point of view—and a few are of raw clay and seemingly were not made for burial purposes.

Aboriginal dwelling-sites along the river are few and as a rule are small.

A number of the mounds have been dug into, while the smaller ones, as well as numerous dwelling-sites, and some stone graves of which we heard, have been destroyed by cultivation.

An interesting feature of our work this season was the knowledge gained by us that a class of so-called banner stones, oblong in form or of kindred shapes,

¹ Barren river, navigable to the city of Bowling Green, about thirty miles by water, was searched as far as that town by our agents, who failed to discover any site of interest upon it.

and also probably some of the winged stones, were not ceremonial or ornamental but had a definite practical use. Exactly what this use was, however, unfortunately we are unable positively to determine.

Along part of Green river, Ky., and particularly in "The Indian Knoll," Ohio County, were found by us objects of antler, hooked at one end and having a cavity in the other end, in which sometimes was asphalt,¹ used for fastening something introduced into the cavity. These objects, all that were found by us except eight² too fragmentary for restoration, are shown in Figs. 4, 10, 12, 13.

Usually in intimate association with these hooked implements of antler were found, in nearly every instance where the hooked implements were present, as exactly described later in this report, other objects, some of antler (most of which were made from the base of the horn), some of stone.

These objects of stone and of antler evidently were employed for the same purpose, sometimes those of stone being with the hooked implements, as were sometimes those of antler. Each has a longitudinal perforation of considerable diameter. The objects of stone, which would be called banner stones and regarded as belonging to the ornamental or ceremonial class were their association at this place unknown, are oblong in outline or of some similar form, a few being of the winged variety. They are carved with the utmost care,³ as a rule almost flat on one side, somewhat convex on the other, and having on the convex side a slight ridge extending longitudinally along the median line. The material for their making was evidently carefully selected, some being of stone rich in coloring, including quartz, flint, chalcedony, and a silicious material closely resembling jade.⁴ A few of the objects of antler have the rough, original surface and perhaps were unfinished.

¹ Dr. H. F. Keller writes: "The material 'from cavity in needle from Burial 84,' Indian Knoll, is asphaltum mixed with a large proportion of mineral matter. It melts readily, burns with a bright flame, and the pitch is readily extracted with solvents like chloroform, carbon bisulphide and turpentine. The ash amounts to about 70 per cent., and consists of a ferruginous clay, and a considerable proportion of phosphate of lime." Asphalt is at present found in quantity near Green river, not far from "The Indian Knoll," where it is taken out for commercial purposes. The aborigines probably used it as they found it, without attempt at refining.

² Belonging to Burials Nos. 34, 84, 87, 105, 115, 211, 219, 251, all from "The Indian Knoll."

³ The following quotation is of great interest, showing as it does the high esteem in which sizars used in net-making, which it is likely these objects were, were held among Papuans and perhaps explains the importance attached to them at "The Indian Knoll."

"Besides the netting cord . . . the only tool used is the mesh-block. This is a thin block of hard wood rasped into shape, and, since these tools are treasured as heirlooms, together with interminably long rhythmical recitals of the wonderful takes of fish made by nets fabricated on each block, the wood most commonly employed is the very dense and hard iron-wood (*Casuarina equisetifolia*). It is highly polished and usually ornamented upon the ends with property marks, showing the exogamous marriage class and *gens* of the owner, which here take the place occupied by tribal distinctions among the endogamous races." William Churchill, "Reef Knot Nets," *Popular Science Monthly*, vol. XL, p. 84.

⁴ Of course no slides for microscopical examination have been cut from these sizars, but tests as to specific gravity and hardness have been made. Mr. F. J. Keeley writes: "As far as I was able to judge from physical appearance and hardness of the objects, I felt confident they were jade, but

These objects of antler and of stone, which, as we have said, evidently were used for the same purpose, the hooks being with one or with the other class indiscriminately, are shown in Figs. 3, 4, 9, and Plates IX, X, XI, which include illustrations of all of both classes found by us, some of the objects of stone, found broken ceremonially, having been restored.

Judging that some use in common could be found for the hooked implements and the objects of antler and of stone, it seemed to us at first that the correct solution of the problem might be that respectively they were netting needles and objects used with them for spacing the meshes of the nets, variously called sizers, spacers, mesh-measurers, mesh-gauges, mesh-boards, mesh-blocks.

Hereafter in this report, for convenience and not because we are fully convinced they are such, we shall designate the hooked implements as needles and the objects found with them as sizers.

We were aware that we had to face two probable objections in connection with our determination, namely, the orifices in the ends of the needles, and the perforations in the sizers, neither of which seem absolutely necessary for the use to which the needles and sizers were assigned.

The hollow part in the needles we considered to be a receptacle for some adjunct, perhaps purely decorative; and the perforation in the sizers to have been made for the reception of a handle, knowing that the Eskimo of Alaska have handles on their sizers, which, however, are of bone and all of one piece. Moreover, we have found by experiment that a handle affixed to one of our sizers is of assistance in net-making with it, and, in addition, would afford a means for suspension much preferable to running a cord through the perforation and bringing it up along a side, since this would interfere with the work for which the sizer was intended.

A section of net made by J. S. Raybon, captain of our steamer, with wooden models of a needle and sizer found by us, is shown in Fig. 1. In this net (where the knot is a half-hitch as used by civilized peoples in net-making and, according to Mason, by some modern Indians) the hooked needle, not used as a bobbin with the cord wound around an end of it, was a decided advantage in catching the cord and pulling it through the knot. By this process, of course, the entire length of cord employed must be drawn through each mesh, a comparatively slow but not prohibitive performance for a people who girdled a tree with fire, pounded out the charcoal, and kept on repeating this operation until the tree was felled. Besides we are not sure that cord of considerable length was possessed by the aborigines in the far-off days of "The Indian Knoll."

If, on the other hand, a hooked implement were to be used as a combination bobbin and needle, the hook would at least be of no evident advantage in the kind of net-making above described.

after learning the specific gravity (2.765) I am compelled to conclude that they are probably of a silicious character. The objects are decidedly harder than any variety of serpentine I have ever seen."



FIG. 1. Section of net, made by Capt. J. S. Raybon with the aid of wooden models of a netting needle and a sizer from "The Indian Knoll." (One-half size.)

Our attention has been called to a description¹ with diagrams and illustrations, by Mr. William Churchill, authority on Polynesia, of a woman of New Britain, Papua, who, in making a net, worked only with a sizer and a ball of cord held in the hand. In the knot employed by her (the reef-knot, or ordinary square knot) the ball was not passed through the mesh.

Making use of a knot of this kind, which presumably the inhabitants of the Knoll are as likely to have devised as the Papuans, and using the cord wrapped around the base of a hooked implement, thus forming a kind of bobbin, a net can be made with ease and without undue delay, as we have determined by experiment, the presence of the hook being a decided aid in catching up the cord to form the knot as made by the Papuan, the bobbin end of the implement taking the place of the ball.

Moreover, the use of a combination bobbin and hooked implement probably would necessitate the attachment of something to the base of the implement to prevent the slipping off of the cord, and this would account for the presence of the hollowed space found there and hitherto not satisfactorily explained.

It may be added that a hooked implement not used as a bobbin but in conjunction with the ball of cord described as used by the Papuans would hardly be of any benefit, there not being sufficient space in the hand to accommodate both, and to lay down the ball in order to take up the hook would cause delay.

Although it would greatly support our original contention that the hooked implements found by us were netting needles, and consequently the objects of stone and of antler found with them were sizers, we have been unable positively to learn that a hooked needle has been used in place of a shuttle² or as a bobbin or in place of one, by aboriginal people, ancient or modern, in net-making where a knot is tied, although we have consulted a number of authorities, through their works or in person.

Lieutenant Emmons describes and figures netting needles resembling crochet needles, and consequently of the same class as ours, as in use among modern Indians of the Northwest coast.³

In a personal letter, however, Lieutenant Emmons writes: "Native tribes of the coast of Alaska used a netting needle just like those figured in my Tahltan writing, but in all instances I have observed these needles were used in the fine snowshoe filling. It is possible that their use might also have been applied to net-making in earlier days."

Mr. Charles C. Willoughby, whose valued assistance in our work we so greatly appreciate, aided by his thorough acquaintance with aboriginal life and his intimate familiarity with the rich collections of Peabody Museum of

¹ William Churchill, *op. cit.*, p. 83.

² As the reader probably is aware, cord is wound longitudinally on the shuttle, or is wrapped around the bobbin and thus is passed through the meshes with celerity.

³ G. T. Emmons, "The Tahltan Indians," University of Pennsylvania, The Museum Anthropological Publications, vol. IV, No. 1, p. 56 *et seq.*

Harvard University, does not consider the suggestion offered by us in regard to the use of the needles and sizers can be the correct one from the fact that he believes a bobbin or a shuttle, similar to those now in use for net-making, was known to primitive peoples and probably to the inhabitants of "The Indian Knoll."

Mr. Willoughby, who thought at first, judging from descriptions and outlines, that the hooked implements might be distal ends of throwing sticks, after a prolonged and careful examination of the objects, now doubts if they were so used.

Lest any of our readers, especially our friends in Europe and in Argentina, where so many of our reports are sent, unable to make a personal inspection of these hooked implements, might, judging only from the illustrations, consider them to have belonged to throwing sticks, it may be well to remind them of the following points:

1. That the throwing stick, or positive evidence of its use,¹ has not been found anywhere in the region² in which is "The Indian Knoll."

2. That nearly all throwing sticks are of one piece, a construction that insures the required strength.

3. That small points of antler or of flint, which might have served as tips of the shafts used with atlatls, were not found associated with our discoveries.

4. That some of our hooked implements are too crooked to have been used on throwing sticks and that the cavities in some are too inconsiderable to have served for the insertion of the main part of the atlatl.

5. That the assumption that the hooked implements were parts of atlatls offers no explanation in regard to the large objects of stone and of antler found with the hooked implements and indubitably connected with them.

As a further aid in this question of the former use of the hooked implements and the objects of stone and of antler, which we sincerely trust others may take up, a résumé of the association of the so-called needles and sizers found in "The Indian Knoll" is here appended.

It may be well to point out, however, that when a needle was not present with a burial having a sizer, or when reverse conditions were encountered, there was usually a good reason to explain the absence of the object, namely: an aboriginal disturbance of the burial; a ceremonial breaking of the sizer where fragments of it were found but where probably parts of the needle, broken at the same time, less durable, had decayed away; interment in the shell material

¹ Dr. Charles Peabody found in Coahoma County, Miss., an object referred to as of bone, having at one end a hook and, at the other, part of a tenon for insertion, which is described as having belonged to an atlatl. "Explorations of Mounds, Coahoma County, Mississippi," Peabody Museum Papers, vol. III, No. 2, Plate XX.

² Prof. Marshall H. Saville writes: "I know of no examples of spear throwers outside of the Cliff Dwellers region and the sporadic find of Cushing at Key Marco in Florida. The Southwestern examples, of course, show Mexican influences. I do not consider, of course, the throwing-sticks of the eastern Eskimos or those of the Northwest coast Indians."

forming the upper part of the Knoll where the shells, pressing against the needles of antler, may have cut them, and the parts, possibly decayed, were confused with spiculæ of bone from the skeleton, also affected by the shells.

		Sizes.	Needles
Bur. No. 2	stone	antler	
" " 20	stone		needle
Disturbed bones 28		antler	(.....)
Bur. No. 29	..	2 antler	needle
" " 34	stone		needle
" " 37	stone		needle
" " 45	..stone		needle
" " 47.....	..stone		.
" " 67	..stone		needle
" " 77	..	antler	needle
" " 82.....	..stone		needle
" " 84...	..	antler	needle
" " 87	stone		needle
" " 93	stone		needle
" " 95	stone		needle
" " 99	$\frac{1}{2}$ winged stone		
" " 105	..stone		needle
" " 115.....	..stone		needle
" " 124		antler	needle
" " 161.....	..stone		needle
" " 163	..stone		needle
" " 202	..stone	antler	needle with each
" " 211	..stone		needle
" " 216	.....stone		needle
" " 219	.....	antler	needle
" " 233	.....	.	needle
" " 236..	..stone		needle
" " 251...	winged stone		needle
" " 259	.....stone		needle
" " 272.....		2 antler	needle
" " 296		.	needle

That part of Ohio river between Cairo, Illinois, where the river joins the Mississippi, and Evansville, Indiana, about 185 miles by water, forming the northern boundary of part of Kentucky, almost all the southern limit of Illinois and of a portion of Indiana, was carefully searched by our agents in advance of our investigation of it. Their report, rather discouraging, tallied with the result of our investigation. Sites still remaining along the river were found to be small and unimportant; mounds were few, considering the area gone over, and permission to investigate them was not always obtained, the larger ones being of vital importance in times of flood, and the smaller ones being regarded perhaps as receptacles of treasure or containing Indian relics to which an exaggerated value was attributed.

Mississippi river was covered by our agents before our visit to that part of it, twice from Memphis, Tenn., to New Madrid, Missouri, and once between the latter point and Cairo, Illinois, in all a distance of 230 miles by water.

About 35 miles of the river above Memphis was explored by us about five years ago, the results being given in a former report.¹

The archæology of Mississippi river between Memphis and Cairo, with the exception of the enumeration of certain quadrangular mounds with flat tops, and of details of small ones, is mainly a memory of the past; one hears only of what used to be. The sites, prodded over, dug out, and constantly under cultivation, have yielded their treasures. Much of our investigation, moreover, along Mississippi river this season was hampered through high water cutting off access to sites and by excess of mud, rendering roads almost impassable.

As usual, we have forwarded to the Army Medical Museum, Washington, D. C., all pathological specimens obtained during our season's work, otherwise all skulls and skeletons saved have been sent to the United States National Museum. All other objects of importance found by us are on exhibition in the Moore Collection at The Academy of Natural Sciences of Philadelphia, except the collection of pottery from Hale's Point, Tenn., which has been presented to the Royal Ethnographical Museum, Stockholm, Sweden.

Dr. M. G. Miller was with the expedition as anatomist, as he has been throughout all our archæological work in the South, and has aided in putting this report through the press.

Mr. S. G. Weir, with us for the sixth season as general assistant, greatly aided us throughout this period, which proved to be of exceptionally hard work.

The Academy of Natural Sciences tenders its warm thanks to Dr. Gerrit S. Miller, Jr., curator, Division of Mammals, United States National Museum, for determination of the bones of lower animals; to Dr. Aleš Hrdlička, curator of the Division of Physical Anthropology, United States National Museum, for information as to skeletal remains; to Dr. H. A. Pilsbry and Mr. E. G. Vanatta, of The Academy of Natural Sciences, for identification of shells; to Mr. F. J. Keeley, curator of the Vaux collection, Academy of Natural Sciences, for determination of minerals and rocks;² to Dr. H. F. Keller for chemical tests; to Mr. Charles C. Willoughby, director of Peabody Museum of Harvard University, for valued assistance in many ways; to Miss H. N. Wardle for aid with the index; to Mr. F. W. Hodge, ethnologist-in-charge of the Bureau of American Ethnology, for literary revision of this report.

The Academy also warmly thanks all the owners of properties along Green river, lower Ohio river, and the Mississippi between Cairo, Illinois, and Memphis, Tennessee, who so courteously placed them at its disposal, and wishes to convey to them its great appreciation of their kindness.

All mounds and sites are described in order going up-stream.

Skeletons, unless otherwise specified, are of adults.

¹ "Some Aboriginal Sites on Mississippi River." *JOURN. ACAD. NAT. SCI. PHILA.*, vol. XIV, 1911.

² As the reader is aware, for absolute determination in such matters a small section cut from the stone is necessary. We need hardly explain that such a proceeding in connection with most archæological specimens is out of the question.



MAP OF PART OF GREEN RIVER, KY.

SOME ABORIGINAL SITES ON GREEN RIVER, KENTUCKY.

The following mounds and sites are of most interest, among those investigated by us on Green river.

MOUNDS AND SITES.

Site near Bluff City, Henderson County.
Site on the Austin Place, McLean County.
Site near Calhoun, McLean County.
Site near Smallhous, Ohio County.
"The Indian Knoll," Ohio County.
Mounds on the Annis Place, Butler County.
Mound on the Martin Place, Butler County.
Mound and site on the Cherry Place, Butler County.
Mounds near Little Reedy Point, Butler County.
Indian Hill, Edmonson County.

SITE NEAR BLUFF CITY, HENDERSON COUNTY.

About one-half mile above Bluff City, between the highroad and the bluff and probably on the other side of the road also, though need to leave space for wagons to turn out prevented our digging there, overlooking the river, is ground considerably higher than the road, consisting of black soil, which proved to have been an aboriginal dwelling-site and a place of burial.

In the comparatively limited amount of digging done in the space necessarily so restricted, seventeen burials were found, exclusive of many scattered bones: eleven adults, two adolescents, four children, none so much as 3 feet in depth, some extending about 1 foot into underlying yellow clay otherwise undisturbed.

The adults and adolescents were in various forms of flexion, except one which lay at full length and four aboriginal disturbances whose form of burial was not determined.

With one burial were two very rude arrowheads or knives, of flint; a small one was with another burial. With the skeleton of an adult, in front of the face, was some pigment, doubtless iron oxide, and at the neck a small, rude, copper celt.

In the soil, apart from burials, were a small, grooved axe of sandstone; two piercing implements of bone; a stone of circular outline having a single pit on each side.

SITE ON THE AUSTIN PLACE, McLEAN COUNTY.

On the property of Mr. A. J. Austin, resident on the place, about four miles below the town of Rumsey, is a small, aboriginal dwelling-site visible from the river bank and easily distinguishable by its dark soil and the presence of a few shells scattered on the surface.



A



B



C



D



E



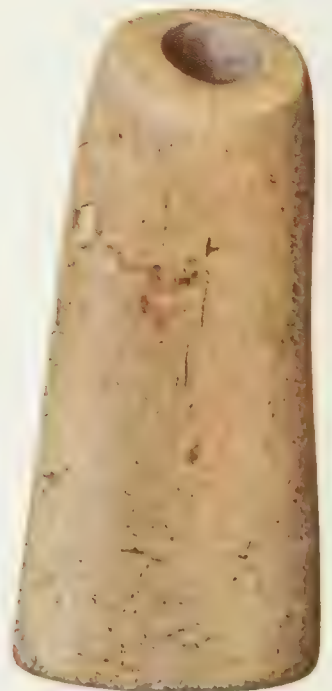
F



G



H



I

N. L. BAKER

MESH-SPACERS. A, AUSTIN PLACE; B-I, INCLUSIVE, "THE INDIAN KNOLL."

A, SANDSTONE; B, QUARTZ, BUR. NO. 99; C, LIMESTONE, BUR. NO. 2; D, LIMESTONE, BUR. NO. 34; E, FERRUGINOUS FOSSILIFEROUS LIMESTONE, BUR. NO. 43; F, ANTILER, BUR. NO. 29; G, ANTILER, BUR. NO. 124; H, ANTILER, BUR. NO. 29; I, ANTILER, IN SOIL (FULL SIZE)

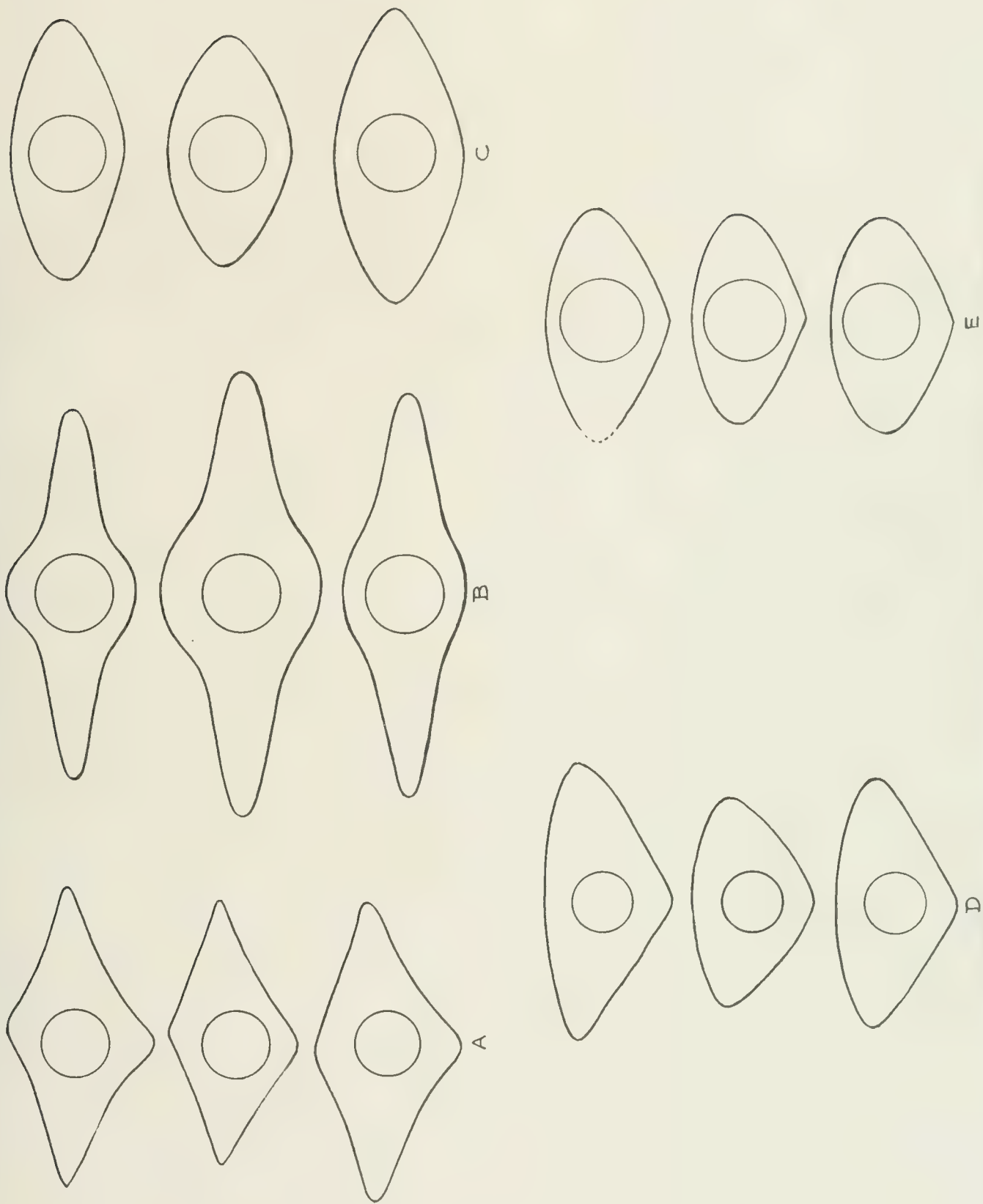


Fig. 2. To face Plate IX. Cross-sections. The lettering corresponds to that on the Plate. (Full size.)

A limited amount of digging quickly came upon sixteen burials and some scattered bones. Twelve burials were closely flexed; two were disturbances, and two were burials of children, one somewhat disturbed. One of the flexed burials lay with the trunk on the back, the lower extremities closely flexed over it.

One skull in fragments was saved from this place, and a reunited femur.

A lancepoint and several arrowheads, of flint, lay near burials but not certainly with them. Some arrowpoints or knives, all of flint and all of coarse workmanship, were found apart from burials, as were several bone awls.

In the soil thrown out in digging at this place was an object of sandstone, shown in Plate IX, A, and in cross-section in Fig. 2, A, which, at the time, we supposed to be a banner stone, but which may have been, as the reader of the introduction will recall, a sizer used in the making of nets.



FIG. 3.—Sizer of antler. With Burial No. 16. Austin Place. (Full size.)

With Burial No. 16, the upper part of whose flexed skeleton had undergone disturbance, was a sizer of antler (Fig. 3) lying between the knees and the right elbow. No netting needle was found, though presumably its absence can be accounted for by the disturbed condition of the bones.

This site was not completely dug through, though seemingly the best parts of it were examined.

SITE NEAR CALHOUN, McLEAN COUNTY.

In the outskirts of Calhoun is a farm belonging to Mr. G. W. Hull, who resides in the town. On part of this property is considerable high ground in sight from the river, on which is much dark soil, evidently once an aboriginal place of abode. Near here, it is said, was a ford where Indians formerly crossed the river.

Numerous buildings are now on this site, but through the courtesy of Mr. Hull we were permitted to dig in an extensive vegetable garden and on a slope between the dwelling-house and the river.

Sixteen burials were encountered, as follows: closely flexed, 9; partly flexed, 1; in a squatting position but tilted to one side, 1; extended on the back, 1; disturbances, 2; child, 1. Burial No. 14 lay with the trunk face down, the legs closely flexed to the right. The skull was missing.

Burial No. 2, partly flexed to the left, had, near the back of the neck, two tubular, shell beads, together, one, 1.5 inch in length, the other, .9 inch, the smaller having the perforation irregularly drilled so that its opening at one end is much to one side. At each ear was a pair of canine teeth of the wolf, all perforated for suspension at the proximal end. These teeth would make effective ornaments hanging, as they probably did, from both sides of the lobe of the ear. Under the right thigh were two knives and a large arrow-head of flint, not in a pile but near together.

Over the left elbow was a sizer of antler, with which was a netting needle of the same material (Fig. 4).

Burial No. 11, closely flexed to the left, had twelve discoidal beads at the neck, each about .75 inch in diameter.

A number of bone awls, several tools of flint, a globular stone of quartzite, and a small muller of claystone were found in the midden debris, as was the skeleton of a dog (*Canis familiaris*), while another lay in the underlying clay beneath the shell and midden debris which at this site was about 26 inches in depth.

SITE NEAR SMALLHOUS, OHIO
COUNTY.

At the settlement of Smallhous, near the Louisville & Nashville railroad bridge, on the left-hand side of the river going up, is a property belonging to Mr. Frank Tichner.

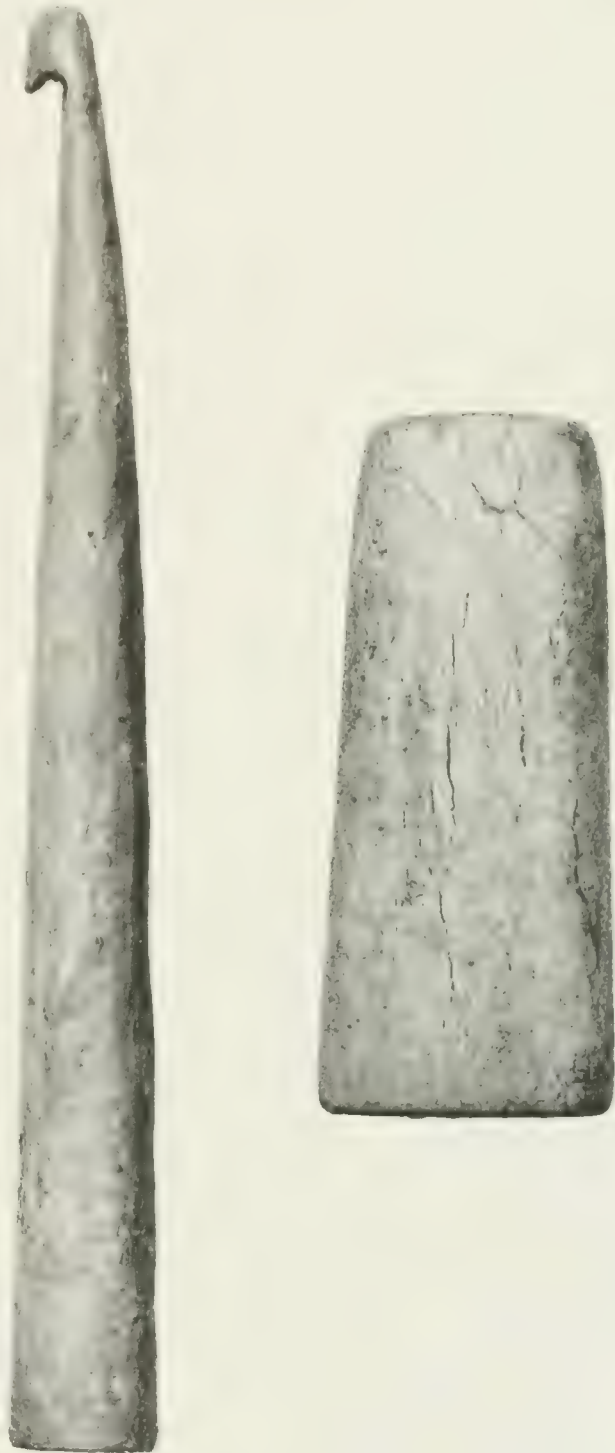


FIG. 4.—Netting needle and sizer of antler. With Burial No. 2. Site near Calhoun. (Full size.)

On this property are a number of small rises in sight from each other and from the water when vegetation does not interfere. These rises, very irregular in outline of base and ranging up to about 10 feet in height, are on rolling land of uneven surface, showing results of wash in flood time, and themselves seemed to us probably to have been caused by swirl of water in periods of overflow.

Investigation, in one instance, came upon a bit of sandstone, a small fragment of pottery, an inconsiderable part of a bone of a lower animal, and what seemed to be small masses of charcoal. All these, however, we believe might have been included in material piled up by the action of water.

Digging in other rises yielded no objects indicating the agency of man.

On part of a ridge somewhat nearer Smallhous than the rises just described, has been an aboriginal dwelling-site as indicated by many broken shells on the surface and a few fragments and broken arrowpoints of flint. The soil, rich in organic matter, has a maximum depth of 30 inches.

A considerable number of trial-holes, but not sufficient to constitute an extensive investigation, came upon five burials. Three of these were flat deposits of human bones in no apparent order, having, respectively, one, four, and eleven skulls. A little above the largest deposit was a small, grooved axe of quartzite, which may have been placed with the burial or possibly had been lost in the period of the growth of the site.

The skeleton of an adolescent, extended on the back, lay 30 inches down on undisturbed, yellow clay; a burial closely flexed to the right was somewhat more than one foot below the surface.

"THE INDIAN KNOLL," OHIO COUNTY.

Beginning opposite the town of Paradise, which is across the river in Muhlenberg county, a property belonging to Mr. Jared Brown, of Paradise, extends for some distance along the left-hand side of the river, going up.

A short distance back from the river, on the Brown property, is a rise consisting of made-ground, between an acre and an acre and a half in extent, we were informed, which is locally well known as "The Indian Knoll." This Knoll is composed of dark soil, rich with admixture of organic matter, containing considerable shell in varying proportions scattered throughout, but nowhere forming nearly a homogeneous deposit. The maximum depth of this made-ground, the result of slow accretion during aboriginal occupancy, is 4 feet 7 inches.

There is no evidence or history of any previous digging for relics or treasure in "The Indian Knoll," and as the plow had not reached the graves, the elevation was practically intact, save in one respect. At the side facing the river there has been some wash in periods of high water, but to what extent the original size of the Knoll has been diminished cannot now be determined.

On the Knoll are several frame structures, of course precluding digging to the extent of the area occupied by them, but ample room for adequate investi-

gation was put at our disposal and Mr. Brown's courtesy to the Academy is greatly appreciated by it.

One hundred and seventy-nine hours, or about twenty-two and one-half workings days of eight hours each, with eight men to dig, were devoted by us to this interesting site, burials being found in practically all of its available extent with the exception of extreme marginal portions, where our work was not productive.

The graves at this place were in the main roughly circular or elliptical. Their size, as a rule, was somewhat limited, there being usually but little space in them beyond that needed to accommodate the skeletons which, as a rule, were closely flexed, purposely, no doubt, for economy of space.

In depth the burials ranged between one foot and 8 feet 5 inches,¹ many of them ending in the yellow sand (some being 2 feet, 3 feet, or exceptionally nearly 4 feet in it) on which rested the made-ground composing the Knoll.

Two hundred and ninety-eight burials were taken out² by us (exclusive of many scattered bones), which, so nearly as could be determined, were as follows: of adults, 183; of adolescents, 23; of infants and children, 92.

The adult and adolescent skeletons were: closely flexed, 128; partly flexed, 29; extended on the back, 1; aboriginal disturbances, 23; burials to be described particularly, 25.

Burials Nos. 7 and 9 had trunks lying on the back, shoulders elevated, heads on chests, humeri alongside the trunks, the elbows at the pelvis of each, the forearms closely flexed on the humeri, the femora vertical, with the legs closely flexed against them.

Burial No. 118 lay in a grave-pit, 7 feet 3 inches from the surface, the deposit of midden debris at that part of the site being 4 feet 7 inches in thickness. Presumably the grave had not been dug from the present surface but when the surface of the Knoll was at a lower level, and this most likely was the case with numerous burials at this site.

The skeleton (see diagram, Fig. 5) had been greatly bent to accommodate it to the restricted dimensions of the grave which, so far up as it was traceable, had diameters, roughly-circular, 23 inches by 25 inches.

¹ One grave, which partly filled with water during a high stage of the river, may have been even deeper than this.

² In one instance a veritable tangle of burials at considerable depth necessitated great enlargement of the area uncovered. This, by several days' work, had nearly been accomplished when, after the close of our working hours, a constant and affable spectator, in the presence of three companions—a mule and two bipeds, all intoxicated except the one customarily designated a beast—with the aid of a shovel obtained from us ostensibly for another purpose, dug down to the skeletons and removed them.



FIG. 5.—Burial No. 118. "The Indian Knoll." The skeleton lies flat on the bottom of the grave.

Burial No. 119. At the bottom of the same deep grave as Burial No. 118 was a skeleton closely flexed, the trunk on the back, the knees drawn up to within 6.25 inches of the chest, the head slanting forward so that but 6 inches intervened between the knees and the face. This grave had a depth of 7 feet 9 inches.



FIG. 6.—Burial No. 132. "The Indian Knoll."

Burial No. 122, the trunk on the back, the thighs together and almost vertical, the legs flexed closely on the thighs.

Burial No. 126, the skeleton on the back to the knees, a leg closely flexed to the outer side of each thigh.

Burial No. 132, the trunk on the back, the skull over the right shoulder so that the chin rested on the upper part of the chest, the humeri alongside the trunk, the forearms crossing above the pelvis, the right femur closely flexed to the right, the leg flexed on it, the foot being against the pelvis, the left femur flexed on the trunk, the knee reaching to the chin, the leg closely flexed, the foot resting on the pelvis (Fig. 6). The grave was roughly circular, having a diameter of about 19.5 inches.

Burial No. 133, the trunk lying on the back to the knees, the legs flexed to the left against the thighs.

Burials Nos. 138 and 161, the trunk face down, the thighs and legs closely flexed to the left.

Burials Nos. 151, 210, and 253, the trunk on the back, the limbs closely flexed on it.

Burial No. 160, the trunk face down, the legs closely flexed to the right.

Burial No. 164, the trunk face down, the thighs, with the legs flexed on them, brought back and up at right angles to the pelvis.

Burial No. 167, the trunk on the back, the thighs flexed to the right, extending upward somewhat, the legs closely flexed on the thighs. The position was necessitated by the restricted dimensions of the pit, as was the case with a number of burials in this site.

Burial No. 170, the trunk face down, the lower extremities closely flexed and slightly to the right.

Burial No. 171, semireclining against the side of the grave, the lower extremities closely flexed, bringing the knees to the left shoulder, the upper arms alongside the trunk, the forearms across the thorax.

Burial No. 193, the trunk on the back, the thighs vertical, the legs flexed on them, the feet somewhat to the right.

Burial No. 195, adolescent, the trunk on the back, the right thigh flexed to a vertical position, the leg flexed on it, the left thigh flexed and to the right across the pelvis, the leg being closely flexed against the thigh.

Burial No. 204 lay very closely flexed on the right, the knees coming even with the top of the head.

Burial No. 205, very closely flexed to the left.

Burial No. 232, closely flexed, face down. In and just above the pelvis were minute human bones of which Dr. Aleš Hrdlička, to whom some of them were forwarded, writes: "The little bones which you have sent me are those of a human foetus near or at term." The skull of this skeleton, which presumably was that of a muscular Indian woman, was badly crushed.

Burial No. 294, the trunk almost face down, the left thigh closely flexed to the right side; the right arm curving above the head. In the crook formed by the left arm was the skeleton of a child (Number 294*a*), the head extending out, the body and legs parallel to the other skeleton.

Burial No. 296, closely flexed on the back, the chin resting on the chest.

Sixty-six skulls, often with most of their skeletons, were saved, conditions at this place being favorable, on the whole, for while skulls lying in the midden deposit were often crushed, and sometimes otherwise more or less injured by shells and bits of stone forced into the facial parts, those in the sand beneath the deposit rested in soft material containing no shells and doubtless had been reinforced through infiltration of lime salts from above.

The fact that many of the graves seemingly had been made at various stages in the growth of the mound and that often a considerable depth of deposit had formed above where their inception presumably was, and the knowledge that among a very large number of artifacts discovered by us, none in any way indicated contact with Europeans, argues a considerable age for the skulls from this place.

These crania and other bones, sent by us as a gift to the United States National Museum, have been examined in a preliminary way by Dr. Aleš Hrdlička, who writes that the crania are "typical, undeformed, Algonquin skulls," and adds that they are "evidently not Shawnee, although coming from the region ascribed in general to that tribe." In another communication Doctor Hrdlička writes: "None of the skulls is deformed and their type is that of the Algonquin. . . . The location is in the region still generally ascribed to the Shawnee, but the remains evidently represent another tribe. This may have been the Miami, or one of the tribes from Illinois, or one of the Lenape."

Throughout the digging, as will be detailed later, a number of skeletons of dogs were found, of which Dr. Gerrit S. Miller, Jr., writes: "I am particularly glad to see the dogs, as their perfect similarity in essential characters to modern European dogs helps to confirm my idea that all domestic dogs had a common origin."

Artifacts with burials in "The Indian Knoll" were comparatively numerous, but unfortunately present little diversity, the so-called netting needles and their sizers being, of course, the feature of the place. Shell beads were with many burials, as we shall see, and were in a wonderful state of preservation, owing, no doubt, to the presence of lime salts from the shells in the midden debris, which presumably exerted so strengthening an influence on the skulls. Globular beads of shell were not found; fine tubular shell beads, from .5 inch to 1.6 inch in length, were encountered, and quantities of discoidal ones, ranging from minute beads only .1 inch to others a full inch in diameter. There are flat beads almost annular, the perforations being .5 inch in a total diameter of .85 inch. Numerous lots of beads were made from fresh-water univalves (*Anculosa prærosa*; *Anculosa*, a small, undetermined species), and one lot from the marine univalve *Marginella apicina*. All these were ground on one side to allow stringing.

A feature of this place, in connection with the shell beads, was that nearly all the various lots found with burials were accompanied with other beads, of jet or of red claystone, the jet beads being sometimes singly with a deposit, sometimes two or three. Most of the jet beads are barrel-shaped, the largest found

being 2.1 inches in length; exceptionally they are discoidal, and about .7 inch in diameter. Examples of jet beads from the Knoll are shown in Plate XII.

The beads of claystone are tubular, barrel-shaped, globular, and discoidal. They vary considerably in size, and occasionally a number were with a single burial, nineteen, we believe, being the maximum. A fine globular bead of claystone, much larger than others of the same kind, is shown in Plate XII.

Beads of claystone and of jet were seldom found in the same deposit, though once a bead of jet and five much smaller ones of claystone, were with shell beads.

In one instance a bead of jet, more than one inch in length, was accompanied with a shell bead of about the same size, and on a single occasion a tubular shell bead more than 1.5 inch long took the place of a jet or of a claystone bead with a deposit.

There were also with burials some shell gorgets, most without decoration, a few, however, showing line and punctate work very rudely executed.

With a number of the deposits of beads, and usually found in pairs, were curved strips of shell cut from the bodywhorls of large marine univalves, similar to those shown in Plate XII. These ornaments, pierced at one end for suspension, in a few instances were found at each side of the head and may have been used as ear ornaments, but in other cases they lay near the neck with beads and apparently had been strung among them; in fact the impression of a bead was in one instance found alongside the perforation of one of these ornaments.

Also strung among the beads, as was done by the Caribs of British Guiana, and elsewhere, were canine teeth of carnivores, perforated for suspension, the greatest number found at the Knoll with any one lot of beads being eight. The teeth from the Knoll have been identified by Dr. Gerrit S. Miller, Jr., as belonging to the wolf, the coyote, and the bobcat (*Lynx rufus*). Doctor Miller writes: "I was struck by the absence of dog's teeth among the ornaments. While I have no doubt about the determination of the coyote and lynx, it must always be remembered that dog and wolf are separated by size only; hence in dealing with a single tooth there is always possibility of an error. In the case of this carnassial I think that such possibility is at its minimum."

Some lanceheads, and a fair number of arrowheads and knives, difficult to differentiate owing to the considerable size of all the pointed flints at this place, were present with burials. All are of flint, of dark shade as a rule.

In the midden debris were numerous other lanceheads, arrowheads, and drills of flint, and a number of arrowheads of antler, some broken. A selection of flints from "The Indian Knoll" is shown in Fig. 7.

No celts were found by us in the Knoll, with the sole exception of a diminutive one but 2.1 inches in length, though fifteen grooved axes were unearthed, none more than 6.5 inches in length, two distinctly with burials, the others, badly battered as a rule, scattered in the midden deposit. These axes, most of limestone though one at least is of sandstone, evidently took the place of celts in the aboriginal life on the Knoll.



FIG. 7. Lancepoints, arrowpoints, knives, scrapers, drills, of flint. "The Indian Knoll." (Full size.)

Near a post-hole which apparently had been connected with the site, lay a grooved axe almost 5 feet below the surface, the deposit being 3 feet 6 inches in thickness at this place. Presumably the axe had been connected with the making, or the driving down, of the post and was lost or forgotten.

There were also found a number of pestles of limestone, not connected with burials as a rule, some about 1 foot in length and all unsymmetrical and carelessly made. A large number of mullers were present in the debris, in two instances three of them lying together. These mullers, nearly all of limestone, though one is of gneiss, one of ferruginous claystone, two of quartzite, are most of them badly battered and chipped. Some are too small to have served for the grinding of maize, except, perhaps, as toys. A number have centrally round depressions and had been used also as hammerstones, perhaps for the cracking of nuts, though no pitted stones were found in the site.

As might be expected, awls, pins, and various other objects of bone were present in the debris, while some were found with burials. A selection of these objects, many of which are in excellent condition, including a fish-hook, is shown in Fig. 8.

With four burials in the Knoll, all of infants or of young children, were five tubes of bone, the longest about 6.7 inches, the two shortest, found with the same burial, each 4.5 inches long. The diameter common to all is about .8 inch. As will be described in our account of the burials, all these tubes are highly polished and all have been worked down exteriorly and cleared out within.

While there was no evidence or history of any digging in recent times in the Knoll, aboriginal disturbance through intersection of graves was frequently noted in parts of it, and this fact doubtless accounts for the finding, in the midden debris, of several sizers and netting needles of antler, always separately. Of course, some of these may have been lost during the growth of the site, as other objects were, though the aborigines inhabiting the Knoll seem to have parted with very little of value through inadvertence.

While the makers of "The Indian Knoll" knew the use of copper in the manufacture of ornaments, they possessed but little of it, as will be noted in the detailed list of objects found with burials; and the use of pottery also seems to have been very limited at this place, only a few small fragments, some bearing a rude decoration, having been found in the entire site. These fragments were in the midden debris comparatively near the surface, though probably small bits were scattered throughout the deposit.

It is probable that the inhabitants of the Knoll used vessels of wood to a considerable extent. Small masses of sandstone, which had to be brought from some distance, were scattered in numbers throughout the debris. These, heated, may have been used to cause water to boil.

No pipe or fragment of a pipe, either of earthenware or of stone, was found by us in "The Indian Knoll." A visitor, however, showed us an object of sandstone which he said he had just picked up on the surface near the Knoll. Into



FIG. 8. Bone ornaments, awls, pins, fish hook, etc., also a spearhead or antler. "The Indian Knoll." Full size.

this object, about the size of a small hen's egg, a bowl had been drilled, and a perforation at right angles to the bowl. In making the latter, however, a part of the mass had been broken off. Unquestionably this object was a pipe ruined in the making, though we cannot say that it belonged to the period of the growth of the Knoll.

As this site is by far the most important one on Green river, so far as the stream was investigated by us, we shall describe each burial with which artifacts were found, and other burials in any way noteworthy.

Burial No. 2, closely flexed to the left. At the neck were discoidal beads of shell, and a bead of jet, 1.4 inch in length, also spires of two marine shells, pierced for suspension. On the left humerus were small shell beads and a sizer of antler (Fig. 9, *I*). On the thorax lay a sizer of limestone (Plate IX, *C*). On the pelvis were fragments of a rattle made probably from the shell of a tortoise, perforated for suspension, which had contained a quantity of small pebbles. A lancepoint of flint, 4 inches in length, lay near this burial and perhaps belonged to it.

The burial was in the midden debris at a place where a considerable proportion of shells was mingled with it, and these shells, we think, may have cut and broken the needle or needles of antler which probably accompanied the sizers, and the spiculæ of antler may have been mingled with fragments of bone, as the burial at this place had been badly injured by the shells.

Burial No. 4, closely flexed to the left, lay in a grave 4 feet 10 inches deep, one foot of which was in the underlying sand on which the Knoll had grown. Above the skull was some red pigment (iron oxide), and below the cranium, a small quantity of charcoal.

Burial No. 6, an aboriginal disturbance, had associated small, shell beads and a lancepoint of flint.

Burial No. 13, a child, had a few shell beads at the neck.

Burial No. 15, closely flexed on the right, had at the neck, a few discoidal shell beads, two of which, together, were considerably larger than the rest, each being .75 inch in diameter.

Burial No. 18, closely flexed to the right. Near this burial lay a pestle. Pestles, mullers, and objects of bone were so numerous in the midden debris at this site that there is no certainty that this pestle belonged to the burial near which it lay.

Burial No. 20, a young child, lying on the yellow sand, the original surface, which at this point was 3 feet 10 inches deep. With the remains were a netting needle of antler (Fig. 10, *E*) and its sizer of limestone (Plate X, *A*; shown in cross-section, Fig. 11, *A*).

The finding of a sizer and a netting needle with so young a child would seem rather out of place did we not know that sometimes relatives and friends seem to have contributed objects of their own at burials, as, for example, in a moment of expansion, one might put with a small child, a pipe or a weapon.



FIG. 9.—Sizers of antler. A, Bur. No. 272; B, no burial; C, Bur. No. 77; D, Bur. No. 219; E, Bur. No. 84; F, Bur. No. 272; G, Bur. No. 28; H, no burial; I, Bur. No. 2; J, Bur. No. 202. "The Indian Knoll." (Full size.)



FIG. 10.—Netting needles of antler. *A*, Bur. No. 296; *B*, no burial; *C*, Bur. No. 124; *D*, Bur. No. 259; *E*, Bur. No. 20; *F*, Bur. No. 272; *G*, Bur. No. 28; *H*, Bur. No. 82. "The Indian Knoll." (Full size.)

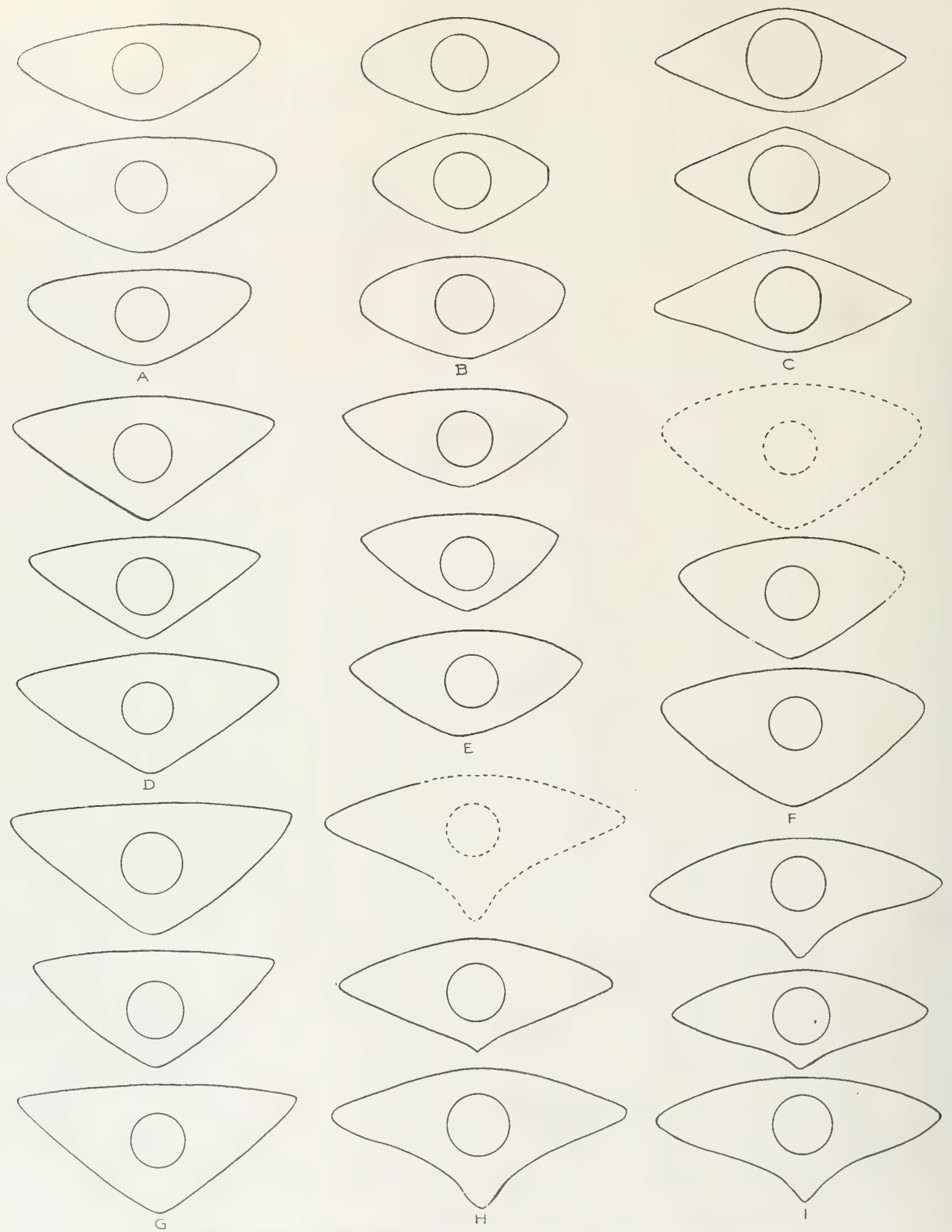


FIG. 11. To fig. Plate X. Cross-sections. The lettering corresponds to that on the Plate. (Full size.)



M. L. BAKER

MESH-SPACERS. "THE INDIAN KNOLL."

A, LIMESTONE, BUR. NO. 20; B, BANDED CLAYSTONE, BUR. NO. 161; C, CHALCEDONY, BUR. NO. 163; D, GRANITE, BUR. NO. 115; E, QUARTZ, BUR. NO. 82; F, GNEISS, BUR. NO. 259; G, SILICIOUS MATERIAL RESEMBLING JADE, BUR. NO. 216; H, COARSELY CRYSTALLINE ROCK, BUR. NO. 87, I, SILICIOUS ROCK, BUR. NO. 67. (FULL SIZE.)

Burial No. 22, partly flexed to the left. At the right of the pelvis, together, were two piercing implements, evidently of avian bones, and a small muller.

Burial No. 27, closely flexed to the right. At the right of the skull, together, were: three implements of bone, one with pointed end, the others with rounded ones, perhaps used in basketry; two arrowheads or knives, of flint, as were all such objects at this place; a drill; the pointed end of a large flint weapon or tool; a rude or unfinished knife. On the left humerus and on part of the thorax was a mass of pure clay, recalling a custom observed in connection with some aboriginal burials along Tennessee river.¹

Burial No. 28, closely flexed to the right. Around the neck were many discoidal beads, each slightly less than one inch in diameter, while numerous tubular beads of shell, the largest ones about 1.5 inch in length, encircled the pelvis.

With this burial were many bones in no order, including four skulls, having in association: a lancehead 4 inches long; six discoidal shell beads; a long, bone implement showing considerable workmanship (Fig. 8, to the reader's left); a long pin in a fine state of preservation; a sizer of antler (Fig. 9, *G*).

Burial No. 29, adolescent closely flexed. Together on the right humerus was the following miscellaneous assortment: a small mass of glauconite, or green earth, probably used as a paint; three incisors of a woodchuck (*Marmota monax*); a small amount of red pigment (hematite); a small, imperforate object of shell, elliptical in outline; two lanceheads or knives about 3.5 and 4.5 inches in length, respectively; a netting needle of antler (Fig. 12, *F*); two sizers of the same material (Plate IX, *F*, *H*).

Burial No. 31, a disturbance. Near the neck were small shell beads and part of a pin made from a bone of the deer.

Burial No. 33, a disturbance. In association with the bones were: minute shell beads; five large discoidal ones; a barrel-shaped bead of claystone, 1.25 inch in length; part of a large weapon of flint.

Burial No. 34, a disturbance. Shell beads were near the head in great numbers, discoidal, minute and large. With these were shell ornaments, one at each side of the skull, and one over the right shoulder, being sections of the body-whorl of the marine shell *Busycon*, each about 3.75 inches long by 3.5 inches wide, having two perforations at one end and one in the center. These rude gorgets were without decoration. At the neck and on the upper part of the thorax were shell beads and a bead of jet, barrel-shaped, 2.1 inches in length (Plate XII). With the shell beads were two other beads of jet and one of claystone; also parts of two curved strips of shell; a long bead of shell partly perforated; four canines of the wolf, perforated at the proximal end for suspension, which evidently had been strung among the beads.

Lying on the right side of the thorax, its long axis corresponding with that

¹ C. B. Moore, "Aboriginal Sites on Tennessee River," *passim*. JOURN. ACAD. NAT. SCI. PHILA., vol. XVI.



FIG. 12. Netting needles or fishhooks. *A*, Bur. No. 45; *B*, Bur. No. 236; *C*, Bur. No. 216; *D*, Bur. No. 202 (with the antler sizer); *E*, Bur. No. 202 (with the stone sizer); *F*, Bur. No. 29; *G*, Bur. No. 163. "The Indian Knoll." (Full size.)



FIG. 13.—Netting needles of antler. *A*, Bur. No. 37; *B*, Bur. No. 93; *C*, Bur. No. 67; *D*, Bur. No. 77; *E*, Bur. No. 161; *F*, Bur. No. 95; *G*, Bur. No. 233; *H*, no burial. "The Indian Knoll." (Full size.)

of the skeleton, was a sizer of limestone (Plate IX, *D*), its needle of antler, much broken, in association.

Burial No. 36, a child, having associated shell beads, large, medium, small, and minute, with others made from an undetermined species of the river uni-valve *Anculosa*. With this burial also were traces of red pigment, and the shell of a tortoise containing pebbles—a rattle.

Burial No. 37, closely flexed on the right, bringing the right knee and elbow together, near which lay a netting needle of antler (Fig. 13, *A*) and its sizer of claystone (Plate XI, *C*, shown in cross-section, Fig. 14, *C*) which apparently had been broken ceremonially, as parts of it were separated one from another by at least 6 inches.

Burial No. 38, a young child having at the neck a considerable number of beads wrought from the river shell *Anculosa prærosa*.

Burial No. 39, closely flexed on the left. Under the skull, piled on one another, were three undecorated ornaments of shell, one badly broken, rude gorgets similar to those already described in connection with Burial No. 34.

Burial No. 42, adolescent, closely flexed to the left. At the right shoulder was red pigment (iron oxide), and shell beads extended down the right side.

Burial No. 43, partly flexed on the right. At the pelvis were shell beads and a barrel-shaped bead of jet.

Burial No. 45, lying partly flexed on the left, had the upper part of the trunk prone. Extending around the neck were shell beads having at intervals among them, four canine teeth of the coyote, with perforations in the proximal parts.

Under the middle part of the thorax was a sizer of fossiliferous, ferruginous limestone (Plate IX, *E*), and immediately alongside it, its needle of antler (Fig. 12, *A*). Near these, on the chest, were many shell beads, and others were along the forearm.

Burial No. 47, extended on the back, at the bottom of a grave nearly 6 feet from the surface, the thickness of the midden deposit at this point being 3 feet 9 inches, so that the pit extended about 2 feet into the yellow, underlying sand. Beads of shell were on the temple, under the skull, at the neck, and on the chest, some, perhaps, displaced from their original positions at the time of the interment. With the shell beads were three fine, barrel-shaped beads of jet, the largest shown in Plate XII. Between the femora and beyond the pelvis were two curved strips of shell of the kind often found among the beads at this place, this deposit being probably a gift and placed hastily without regard for position. On the thorax, below the neck, was a sizer of quartz (Plate XI, *A*). Most careful search failed to come upon the expected needle of antler, and no disturbance or deposit of shell in the grave was present to explain its absence.

Burial No. 48, a disturbance accompanied with shell beads and two lance-heads of flint, 4.75 inches and 3.5 inches in length, respectively.

Burial No. 51, that of a child about ten years of age, had three undecorated



M. L. DAVIS

MESH-SPACERS. "THE INDIAN KNOLL."

A, QUARTZ, BUR. NO. 47; B, QUARTZ, BUR. NO. 251; C, CLAYSTONE, BUR. NO. 37; D, CLAYSTONE, BUR. NO. 93; E, LIMESTONE, BUR. NO. 211; F, BANDED CLAYSTONE, BUR. NO. 105; G, SILICIOUS MATERIAL RESEMBLING JADE, BUR. NO. 95; H, QUARTZ, BUR. NO. 202; I, GABBRO, BUR. NO. 236. (FULL SIZE.)

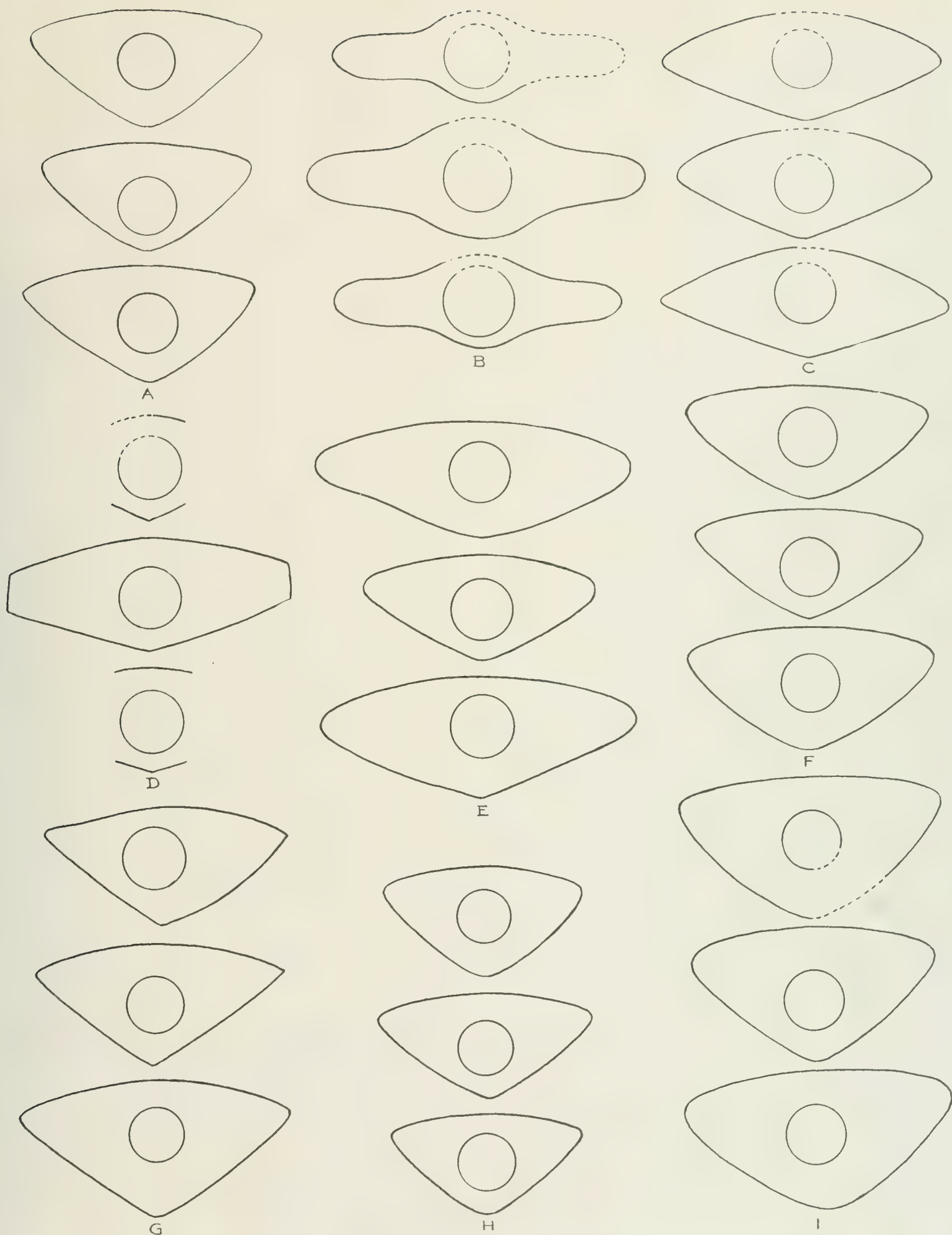


FIG. 14. To face Plate XI. Cross-sections. The lettering corresponds to that on Plate XI. (Full size.)
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shell gorgets similar to those found with Burial No. 34, which presumably had been arranged around the neck, judging from the position in which they were found.

Burial No. 52, closely flexed on the left. Near this skeleton was part of that of a dog, the rest having been removed by a neighboring burial with which other bones belonging to the same dog's skeleton were found. At the back of the neck of Burial No. 52 was an object of limestone, 4.1 inches in length, somewhat resembling a bar amulet, but without perforation.

Burial No. 53, closely flexed on the right, lying at the bottom of a grave 5.5 feet from the surface and extending about 2 feet into the underlying, yellow sand, had a piercing implement of bone on the pelvis.

Burial No. 56, closely flexed on the right, had at each ear a curved ornament of shell of the kind already several times described. At the top of the skull was a mass of gray clay, probably a pigment, and a rude implement of flint.

Burial No. 60, an infant in a grave pit, having shell beads at the neck, among which was a long, tubular one of shell, a central piece, no doubt.

Burial No. 61, closely flexed on the left, having a mass of pigment (hematite) at the right of the skull.

Burial No. 62, an infant. Near the head were shell beads and two of the curved strips of shell well known at this place.

Burial No. 64, a child lying with the skeleton next to be described, that of an adult. On the chest of the child, hanging downward and extending over on the pelvis of the adult, where presumably they had swung at the time of burial, was a rouleau of discoidal beads of shell, each about .7 inch in diameter, having centrally in the string a barrel-shaped bead of jet and terminally an ornament of copper about 4 inches in length, somewhat resembling a small, ceremonial blade. At the cutting edge, however, is a perforation for suspension. Many small, shell beads were on the chest.

Burial No. 65, closely flexed on the left, had on the pelvis a bone pin and two incisors of the beaver.

Burial No. 67, partly flexed to the right. Near the skull was an arrowhead or knife. On the right side of the thorax lay a netting needle of antler (Fig. 13, C), between the closely flexed forearm and the ribs. Some distance away, on the upper part of the pelvis, lay a beautiful sizer of silicious rock (Plate X, I).

Burial No. 71, closely flexed on the left, had on the pelvis a lancehead or knife, of flint, about 3 inches in length.

Burial No. 72, closely flexed on the left. Near the skull were two lanceheads or knives, respectively about 3.5 inches and 4 inches in length, and another nearby 4.25 inches long. Under the thorax was a mass of gray clay, probably a pigment, and under the left shoulder was an object of fine-grained sandstone, which seems to have been part of a small sizer, an indication of the original perforation remaining on one side of the object as it now is. An effort apparently was made to drill a hole longitudinally through it, but the attempt was abandoned

(Fig. 15). With this were several bone pins, all broken. An arrowhead or knife of flint lay near the left forearm.

Burial No. 73, closely flexed to the right, had spread on the left thigh: a bone fish-hook, shown in Fig. 8; eight arrowheads or knives; part of another; two fragments of antler; jawbones of the woodchuck (*Marmota monax*); two bits of flint.

Burial No. 75, partly flexed on the right, had at the neck two curved, perforated strips of shell, and a similar one on the chest.

Burial No. 76, adolescent, closely flexed to the left. The skeleton lay on the bottom of a grave-pit, 6 feet 9 inches from the surface. The midden deposit at this place was 3 feet 5 inches thick, so the bones lay 3 feet 4 inches deep in the underlying, yellow sand. Shell beads and tubular beads of bone were around the neck; shell beads were at the left wrist. A flint knife lay at the pelvis.

Burial No. 77, closely flexed on the right. Under the right side of the thorax lay a netting needle of antler (Fig. 13, *D*), and immediately with it a sizer, also of antler (Fig. 9, *C*).

Burial No. 78, a child. At the head were: two undecorated shell gorgets; a mass of glauconite, or green earth; a drill and probably a knife, of flint.

Burial No. 80, closely flexed on the left, had at the neck shell beads and a large barrel-shaped bead of jet.

Burial No. 82, a child about five or six years of age. Apparently a double string of shell beads had been placed around the back of the neck and continued down on each side of the chest in front to just above the pelvis, where they united. At this point lay a sizer of quartz (Plate X, *E*), its long axis corresponding with that of the child's body, some of the beads lying under the upper end of the sizer. With the sizer was its netting needle of antler (Fig. 10, *H*). About half-way down the strings of beads, on each side, was a barrel-shaped bead of jet.

Curved shell ornaments, perforated strips of shell, were, one at the right shoulder, another about 4 inches away in the sand (Plate XII), the ornament nearest the skeleton lying among the beads.

Burial No. 83, closely flexed on the left, having on the pelvis an arrowhead or knife, of flint.

Burial No. 84, closely flexed to the right. At the outer side of the left shoulder in a heap and in no order, were: a rude, blunt tool of limestone; a grooved axe of limestone; a bone awl; three arrowheads or knives and two drills, all of flint; a fragment of flint; a number of unworked bones, mostly of the deer but some having belonged to birds, many broken; a sizer of antler (Fig. 9, *E*); its netting needle of antler, lying with it, too much crushed and decayed for exact restora-



FIG. 15.—Incomplete ornament of fine-grained sandstone. With Burial No. 72. "The Indian Knoll." (Full size.)

tion. Even the sizer had been injured by juxtaposition with the tools of stone. Asphalt found in the cavity of the needle and tested by Doctor Keller, is described in the Introduction.

"The Indian Knoll," it should be remembered, is not, properly speaking, a mound, but a dwelling-site, and the finding of a grooved axe in it has no bearing on the question as to whether or not grooved axes were placed in mounds.

Burial No. 87, a child. On the chest lay a sizer of coarsely crystalline rock (Plate X, *H*), which had been broken longitudinally and across, but not by a blow that had crushed or chipped in any way, leaving four parts about equal in size. Three of these parts lay almost together, the fourth was not found, and, presumably, when the ceremonial breaking occurred, the portion was left elsewhere. It seems hardly necessary to say here that when part of a sizer was not recovered the matter was not lightly passed over or abandoned until after a thorough search. Near the skull, upright, was the thicker or hollow end of a netting needle of antler. The burial of an adult lay immediately above that of the child under description, and it is likely that its position may account for the loss of part of the needle and even for that of the fragment of sizer.

Burial No. 92, adolescent, closely flexed on the right. At the pelvis were a few shell beads made from *Anculosa prærosa* and an undetermined species of *Anculosa*, river univalves. With these were two beads of jet.

Burial No. 93, partly flexed, the upper part of the trunk face-down, throwing the knees to the left. At the neck were shell beads and two of jet. Near the left elbow, over the left femur, and on the trunk were fragments of a large marine shell, seemingly broken ceremonially and scattered.

In the angle between the knees and the trunk of the skeleton, at the edge of the grave, was a sizer of claystone (Plate XI, *D*), broken but with all parts present except one. Its needle of antler lay with it (Fig. 13, *B*). With these were: a spearpoint of antler; a small mass of glauconite; a lump of powdered hematite; a bone pin; several fragments of flint; the pointed ends of four lance-heads and the lower part of one of them, all of flint. With these fragments was a rude arrowhead which readily could have been made from part of a lance-point such as were found.

Burial No. 95, closely flexed to the right, lying on the bottom of a pit 5 feet 10 inches from the surface. The midden deposit was here 4 feet 2 inches in thickness, and the burial lay 1.5 foot deep in the yellow sand. At the outer side of the left humerus lay a netting needle of antler (Fig. 13, *F*). Its sizer, of silicious material resembling jade (Plate XI, *G*), was found in the sand near the pelvis. Shell beads encircled the left elbow.

Burial No. 97, closely flexed on the right. On the upper part of the left side of the thorax were a flint knife and a bone awl.

Burial No. 99, adolescent, closely flexed on the left. At the neck were shell beads in great numbers (*Anculosa prærosa* and the undetermined *Anculosa*) continuing down the upper part of the thorax.

On the vertebrae, below the chest, were three parts of a winged stone of quartz (Plate IX, *B*), representing about half the ornament. It is very unlikely that the remainder of this object had been with the fragments found, as our digger had come upon a part of the skeleton remote from where the object lay, without disturbing the bones, which were entirely removed with a trowel. Moreover, all the surrounding soil was conscientiously sifted without success. Here we have another instance of ceremonial breaking apart from the burial and failure to inter all the fragments. No netting needle was found with this winged stone, though later in the digging we met this type associated with a netting needle.

Burial No. 101, a child having shell beads at the neck.

Burial No. 103, closely flexed to the left. At the face was an ornament of copper, 6 inches long, centrally perforated and somewhat resembling a bar amulet in outline. Shell beads, including a barrel-shaped one of jet, were at the neck.

Burial No. 104, partly flexed to the left. At the right wrist were discoidal shell beads and perforated river univalves (*Anculosa prærosa*). Evidently strung with these beads were eight canine teeth of the wolf, having each a perforation in the proximal end.

Burial No. 105, a young child. Around the neck were a few shell beads and two of the curved strips of shell common at this place, one somewhat shorter than the other, as we sometimes found them; also two canine teeth of the wolf, each having two perforations in line at the proximal end.

At the left shoulder was a netting needle of antler too badly decayed for exact restoration, and its sizer of banded claystone (Plate XI, *F*).

Burial No. 109, a child. At the neck were shell beads and one of jet accompanied with a large shell bead, evidently a companion piece. On the chest, probably having been suspended from the bead necklet, was a gorget of shell, badly crushed, having had a small, rude decoration of three parallel lines enclosing two rows of punctate marks.

Burial No. 110, closely flexed to the left. At the neck and on the upper part of the chest were shell beads and two beads of jet. At each side of the head was a curved, perforated strip of shell, of the kind common at the Knoll, seemingly ear-ornaments in this instance.

Burial No. 113. Closely flexed on the left. At the left side of the thorax was a small quantity of hematite pigment.

Burial No. 114, a young child, having a necklet of shell beads interspersed with four perforated, canine teeth of the bob-cat (*Lynx rufus*). With the beads, apparently as a central ornament, were two of the well-known strips of shell. About 6 inches from the feet of the skeleton was a bone tube 5.25 inches in length, apparently polished by use, as are the other four tubes from this place. Six inches distant from the skeleton was the shell of a turtle or of a tortoise, broken, a rattle, containing pebbles unusually large, some having the size of the end of one's little finger.

Burial No. 115, adolescent, closely flexed to the right. Shell beads, a bead of jet, and two perforated canine teeth of the wolf were at the neck.

Between the left humerus and the ribs was a netting needle of antler, too badly decayed for complete restoration. On the upper part of the right side of the thorax lay a sizer of granite (Plate X, *D*).

Burial No. 116, adolescent, closely flexed to the right. Under the skeleton but not on the other parts of the bottom of this grave, was a layer of powdered hematite, having a maximum thickness of about .5 inch. Back of the skull, together, were two of the well-known curved shell strips.

Burial No. 122, particularly described elsewhere. Across the upper part of the right thigh were shell beads, including a large one of jet.

Burial No. 124, closely flexed to the right. On the ribs of the right side of the thorax lay a netting needle of antler (Fig. 10, *C*). A handsome sizer of the same material (Plate IX, *G*) rested on the left elbow.

Burial No. 126. This skeleton lay on the back to the knees, the legs closely flexed to the outer side of the thighs. A knife or arrowhead, of flint, was at the right knee.

Burial No. 129, closely flexed to the left. At the neck were three large, tubular beads of shell and one of jet. One of the shell beads, having split when in use, had been fastened with asphalt.

Burial No. 134, closely flexed to the right. Red pigment (hematite) was on the upper part of the right humerus. At the lower part of the right side of the thorax lay a flint knife 4.5 inches in length. An arrowhead or knife, of the same material, 2.75 inches long, was on the lower part of the thorax. Halfway down the right thigh was a blunt, celt-shaped implement of quartzite, lying near the knife, owing to the flexion of the skeleton. A mass of gray clay was near the pelvis.

Burial No. 136, partly flexed to the left. At the left of the skull was a knife or arrowhead, of flint.

Burial No. 139, closely flexed to the left. Around the neck were beads of shell and one of jet.

Burial No. 142, closely flexed to the left. The skeleton lay at the bottom of a grave 6 feet 7 inches from the surface, the midden deposit there being 4.5 feet thick, so that the grave-pit extended about 2 feet into the yellow sand. Near the skull burial of this and having one leg under the cranium, was the skeleton of a dog, its skull immediately against the human cranium.

Burial No. 145, a child having shell beads around the neck, including two of jet.

Burial No. 148, closely flexed to the left, lay in a deep grave and had a bone piercing implement under the left leg, which must have been intentionally placed, as the skeleton lay far from the midden refuse.

Burial No. 150, a child about 3 years of age, having beside it the skeleton of a dog.

Burial No. 152, closely flexed to the right, more than 6 feet from the surface. On the upper part of the chest lay a knife or lancehead, of flint.

Burial No. 153, a child, lay immediately under Burial No. 152, but in reverse position, the head of the child being under the pelvis of the adult. Around the child's neck were beads of shell (*Anculosa prærosa* and one *Campeloma* of undetermined species) accompanied with a bead of claystone.

Burial No. 154, an infant. At the neck were four discoidal beads of shell.

Burial No. 155, closely flexed on the right. On the upper part of the chest, was an arrowhead or knife, of flint.

Burial No. 157, closely flexed to the right. Five discoidal, shell beads were at the neck.

Burial No. 159, a child. Around the neck and extending down on the chest were shell beads and nineteen beads of claystone, none especially large.

Burial No. 160, described in our special forms of burial. Shell beads and two beads of claystone were around the neck and around the left wrist and on the pelvis. The beads were as follows: the marine univalve *Marginella apicina*, the fresh-water univalve *Anculosa* of undetermined species, with many discoidal beads of medium size and some fairly large. With them were also two perforated fragments of shell, one being of a large marine univalve, and two shell tops of heads of hairpins. These, as shown in Fig. 16, had been made by placing the end of a pin in a lump of material, probably asphalt, and the section of shell on top. The shanks of the ornaments were missing, probably through decay.

Burial No. 161, already described as to the form of burial. Under the pelvis were two small, undecorated shell ornaments, each having two perforations at one end. With these were shell beads of the ordinary kind and of the two varieties of *Anculosa* found in this site, also a bead of bone, all probably having been on the front of some garment.

Near together, where the hands would be, the body being face-down as described, were a netting needle of antler (Fig. 13, *E*) and a sizer of banded claystone (Plate X, *B*). Asphalt remained in the perforation of this sizer. Under the right foot was an arrowpoint.

Burial No. 163, partly flexed to the right. At the outer side of the lower part of the right humerus was a sizer of chalcedony (Plate X, *C*), a beautiful object. On the opposite side of the arm, an inch or two distant from the sizer, lay the usual netting needle of antler, considerably crushed but since restored (Fig. 12, *G*). Near the elbow were two discoidal, shell beads which may have been attached to one end of the sizer in an ornamental capacity. In the case of Burial No. 263, this site, we shall see how beads were used as ornaments in conjunction with asphalt. At the neck of the skeleton were a few shell beads.



FIG. 16.—Head of hairpin. With Burial No. 160. "The Indian Knoll." (Full size.)

Burial No. 164, whose form has already been described. Near the left of the pelvis were three bone pins. In the vicinity of the right elbow were masses of red clay and of gray clay, near these being a rattle made from the shell of a tortoise, containing pebbles, and a large bead of jet, also a bit of flint.

Burial No. 165, an infant. On the bottom of the pit in which the skeleton lay was hematite pigment covering a space somewhat larger than that occupied by the bones.

Burial No. 166, partly flexed on the left, lay in a pit above Burial No. 167, the burial under description being nearly 7 feet from the surface. One of its lumbar vertebræ is transfixed by a spearhead of antler, our first experience in discovering a point of any kind embedded in human bone.

Dr. M. G. Miller, who, while carefully removing each bone of this skeleton for transmittal to the National Museum, the present writer being at hand, came upon the transfixed vertebra, kindly has prepared a note on this subject to follow the close of our account of our work at "The Indian Knoll."

Burial No. 167. The form of this burial has been already described. At the base of the skull was a celt-shaped, blunt implement without the perforation at one end that some of these tools possess, though none of the perforated kind was found in the Knoll. Also near the skull were two discs of shell, accompanying hemispheres of asphalt,¹ the upper parts of ornamental hairpins of the kind shown in connection with Burial No. 160.

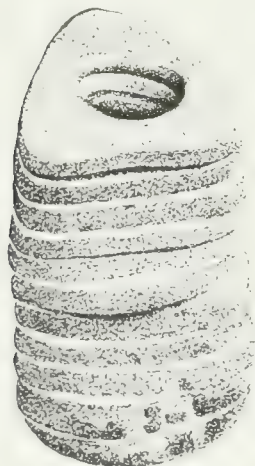


FIG. 17. Objects of shell, shown as found. With Burial No. 170. "The Indian Knoll." (Full size.)

Under this burial in part and partly under that of a child lying nearby, was the skeleton of a dog.

Burial No. 169, closely flexed to the left, had an arrowhead or knife near the skull.

Burial No. 170, already described as to form. Extending along the right side of the lower part of the thorax, placed face to face closely, resembling a solid mass, were eleven heart-shaped beads of shell arranged to present a uniform outline as shown in Fig. 17. If these beads had been fastened together, presumably gum had been employed, as no trace of asphalt remained.

Burial No. 171, already described as to form, had, at the right elbow, a lance-point of flint, 4.25 inches in length.

Burial No. 173, the skeleton of an infant at the bottom of a circular pit 20 inches in diameter, extending into the sand. The bottom of the grave had been covered

¹ Doctor Keller writes of this substance found with Burial No. 167 as "a brittle material which on grinding yields a light brown powder. It also contains nearly 30 per cent. of asphaltum and yields an ash of highly silicious substance which also contains some phosphate of lime, but much less than the preceding specimen."

Reference is made by Doctor Keller to the asphalt found with Burial No. 84, referred to by us in the Introduction. Doctor Keller made a number of tests of the asphalt from this site, not all of which are given in detail by us.

with a thin deposit of hematite, pink in shade. At the face was a tube of bone 6.7 inches in length and .8 inch in maximum diameter, highly polished, like all similar tubes in this mound, as already stated.

Burial No. 172 lay closely flexed to the left at the bottom of a grave 7 feet 8 inches deep, extending 3 feet 2 inches into the sand. The skull and skeleton were saved.

The skulls and other bones given by us to the United States National Museum were shipped from the field without thorough cleaning. After their arrival at destination we were gratified to receive from Dr. Aleš Hrdlička the following communication: "In cleaning skull No. 290,056, a young female from 'The Indian Knoll,' we found a ragged hole in the right temple and a crude, large, flint arrowhead within the skull cavity," in reference to Burial No. 172.

The outline of the broken part is clearly notched by the edge of the arrow-point on entrance. On the opposite side of the skull, in line, is a broken space in thin bone, the margin of part of which is recent. It is possible that the skull at this place may have been fractured by the impact of the arrow within and parts may have broken away then and parts afterward.

One hardly looks for the fate indicated by the presence of this arrowhead to have befallen a young woman even in savage times. Doubtless some story of murder or of massacre lies behind this episode.



FIG. 17*a*. Arrowhead of flint, found within the skull cavity of Burial No. 172. Both sides are shown. (Full size.)

The arrowhead of flint, found within the skull cavity, about 2 inches in present length, has lost part of the point and seemingly some of the shank, both presumably through force of impact.

An interesting fact in connection with this arrowpoint, which was used to such effect, is its crudity, apart from its mutilation; if found by us under any other circumstances, it would have been considered unfinished or a "waster." This

arrowhead, which demonstrates the result of how rude an effort sometimes saw actual use, is shown in Fig. 17*a*, both sides being represented.

Burial No. 174, closely flexed on the left. Near the skull was an arrowhead of antler.

Burial No. 179, adolescent, closely flexed to the right. A few shell beads encircled the right forearm.

Burial No. 185, the skeleton of a child, slightly disturbed. Against the lower jaw was a small ornament of sheet-copper, somewhat broken.

Burial No. 186, an infant with which was a mass of the red oxide pigment, about the size of a woman's fist.

Burial No. 189, a young child. At the neck were four beads of shell and at the pelvis a tube of bone slightly smaller than the one described in connection with Burial No. 173.

Burial No. 192, adolescent, closely flexed to the right. At the back of the skull lay a muller which, as this burial lay 6.5 feet from the surface in the underlying yellow sand, presumably had been intentionally interred with the burial.

Burial No. 196, a young infant lying at the bottom of a grave, 7 feet from the surface and extending nearly 3 feet into the sand. The bones were wonderfully preserved for those of one so young. The bottom of the small grave-pit, about 21 inches in diameter, was covered with red hematite pigment.

Burial No. 201, an infant. At the neck and on the thorax were discoidal shell beads and others made from the river shell *Anculosa prærosa*. With the beads was a small ellipse of shell with a large central opening, also a strip of shell about one inch in length, pointed at one end and having a perforation at the other.

Burial No. 202, closely flexed on the left, the upper arms along the chest, the forearms partly flexed and almost in contact with the knees, which were about one foot from the forehead. Near the right knee and the right hand was a sizer of quartz (Plate XI, *H*), having its needle of antler (Fig. 12, *E*) only 2 inches away.

At the right hand were a sizer of antler (Fig. 9, *J*) and its needle of the same material (Fig. 12, *D*).

At the right shoulder was a grooved axe of limestone, the poll at the shoulder, the blade down the side of the burial. This skeleton lay 5 feet 6 inches deep, 1.5 foot in the yellow sand, so that the axe evidently had been intentionally placed and was not an accidental apposition.

Burial No. 204, described elsewhere as to position. At the pelvis lay a flint knife or arrowhead.

Burial No. 206, adolescent, partly flexed to the right. Around the neck were a few small, discoidal, shell beads and three larger ones of shell with a barrel-shaped bead of jet.

Burial No. 208, a child. Placed side by side were two parts of a pestle of limestone which had been 13 inches in length, lying beside the skull.

Burial No. 209, a child. Shell beads and one of jet were at the neck.

Burial No. 210, closely flexed on the back, at the bottom of a grave, 8 feet 5 inches from the surface, extending 2 feet 2 inches into the sand. Around the neck were shell beads and a tubular one of claystone. Alongside the skull, in fragments, was a large drinking-cup made from the marine shell *Busycon perversum*.

Burial No. 211, adolescent, closely flexed on the left. On the upper part of the right side of the thorax were twenty-three discoidal beads of shell, each about .7 inch in diameter, and a fine bead of jet.

On the lower part of the thorax was a sizer of limestone (Plate XI, *E*) and its netting needle of antler, somewhat decayed.

Burial No. 212, closely flexed on the right. Shell beads and one of jet lay across the upper part of the thorax.

Burial No. 216, a child, flexed closely on the right, having around the neck and extending down on the thorax a few discoidal shell beads and many made from the two species of *Anculosa*, often encountered at this site. Among these were: a barrel-shaped bead of claystone one inch in length; two perforated canine teeth of the bob-cat (*Lynx rufus*); and one of the curved shell strips having perforations, found at this site.

On the lower part of the thorax, together, were a sizer of silicious material resembling jade (Plate X, *G*) and its needle of antler (Fig. 12, *C*).

Burial No. 218, an infant. At the neck were shell beads and a barrel-shaped one of claystone.

Burial No. 219, a child. At the pelvis was a small sizer of antler (Fig. 9, *D*) and its needle, the latter somewhat decayed and having part missing from a break in early times.

Near the sizer was a bead of antler 1.2 inch in length and an arrowhead or knife of flint, another being at the right femur. A bone pin in fragments lay near the pelvis.

Burial No. 222, partly flexed to the right. Fifteen shell beads were around the neck, and a fine barrel-shaped one of jet.

Burial No. 226, closely flexed to the right. At the upper part of the left humerus was a bone awl; a flint scraper lay over the right elbow.

Burial No. 229, adolescent, closely flexed on the left. On the thorax were a few shell beads. Between the knees and thorax was the carapace of a tortoise, having two holes at one end for suspension—doubtless part of a rattle.

Burial No. 230, an infant, having five tubular shell beads at the neck, each from 1 inch to 1.6 inch in length, and a large tubular bead of jet. Near the beads were four gorgets of shell, bearing a rude decoration common to all, shown in Fig. 18.

Burial No. 231. Parts of a skeleton interred on the back, the central portion missing. Around the neck were shell beads and a tubular bead of claystone. Near the right femur was an arrowhead of flint, while another arrowhead and a bone pin, together, were nearby.

Burial No. 233, partly flexed to the right. Around the neck and above the shoulder, as if the string had swung out from the neck, were beads of shell and

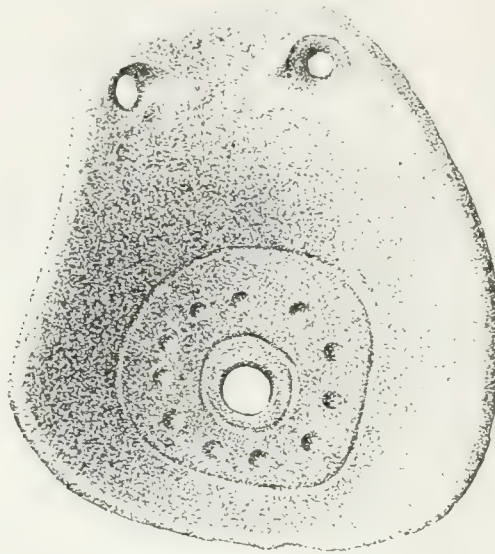


FIG. 18.—Gorget of shell. With Burial No. 230. "The Indian Knoll." (Full size.)

one of claystone. Other beads were on the upper part of the thorax. A bone awl and a netting needle of antler (Fig. 13, *G*) were at the left of the pelvis, but no sizer was found. With this burial was also an incisor of a beaver (*Castor canadensis*).

Burials Nos. 235 and 236, children, one lying face-down to the knees, the legs flexed vertically above the level of the thighs and over them. Immediately under this burial was that of another child, partly flexed to the right, the pelvis below that of the upper one, though the trunks were not in the same line, the head of the deeper burial being to one side.

Just back of the pelvis of Burial No. 236 was a netting needle of antler (Fig. 12, *B*) and most of a sizer of gabbro (Plate XI, *I*).

The breaking of this sizer we believe to have been ceremonial, as the needle was intact and the bones of the skeleton were undisturbed. There was every evidence that a double burial had been made at one time. The two principal parts of the sizer were lying together, though the position of one part was reversed in reference to the other, that is, its outer, or unbroken margin was toward the broken part of the other. Moreover, small parts of the sizer lay near the skull and one in front of the thorax. Though this burial was entirely removed with the aid of a trowel and all the material taken out was passed through a sieve, some minor parts of the sizer were not recovered, and these, presumably, were left behind at the scene of the ceremonial breaking.

In front of the skull were two discs of shell fitting to hemispheres of asphalt, each having a hole in the lower part where the end of a pin had been. These.

when entire, had been pins used as ornaments in the hair, like others in this place. Shell beads were at the pelvis and in front of the trunk below the thorax, having with them eleven shell strips of various shapes and sizes, each with a perforation at one end but without decoration.

With the beads also were eight tubular beads of red claystone, the longest 1.6 inch in length, and a fine bead of the same material, oblate spheroidal, shown in Plate XII. These beads and ornaments may have formed a girdle around the waist. Under the pelvis was a drill of flint.

Burial No. 237, a child, having shell beads, a large one of jet and four smaller ones of claystone.

Burial No. 240, partly flexed to the left. At the right wrist were a few shell beads and a small, undecorated, shell pendant.

The condition of the skull of this individual showed him to have been born under an evil star. A blow from a club, the poll of an axe, or some other blunt weapon had fractured the skull on the left side, which he had survived, as shown by the condition of the fracture.

On the other side of the skull are marks of four wounds: a circular opening evidently left by the end of an antler point; another opening where seemingly two antler points have entered near together, and a third perforation caused either by a glancing blow from an arrow, a thrust of a spear coming obliquely, or from the edge of an axe. From these wounds the victim did not recover, as there is no sign of repair on the margins.

Dr. M. G. Miller has kindly prepared the following note in reference to these wounds:

"Starting from a point on the left parietal bone, two inches below the sagittal suture and the same distance back of the coronal, a wide line of fracture extends downward and forward to the upper end of the temporo-sphenoidal suture and continues down this suture almost to the base of the skull. From the upper end of this fracture another line, less open but clearly defined, extends downward and backward to the temporo-parietal suture which it intersects about 1.5 inch back of the main fracture. Connecting these about 1.5 inch below their point of union is a third line antero-posterior in direction.

"Throughout most of its course the principal line of fracture is superficially wide, the separation of the margins of the outer plate of the skull measuring over .1 inch in places. The edges are rounded and somewhat irregular, evidently the result of a suppurative process. Along the middle part of its course, for about .75 inch, the fissure extends through the inner plate also, presenting here a free opening into the cranial cavity. Restoration of bone tissue, however, is evident along the upper part, where there is some thickening of the outer plate.

"The shorter line of fracture, clearly defined, is solidly united throughout its course, while the connecting fracture is merely a trace.

"The part of the parietal lying in the angle formed by the two principal lines of fracture is somewhat depressed, especially at the apex, where considerable

thickening of the outer plate is evident. Moderate exostosis is present also just above this part of the fracture.

"The inner surface of the parietal shows a low, sub-conical projection of bone beneath the apex of the depressed portion.

"Notwithstanding the extent and severity of this lesion, it is evident the victim survived the injury for a considerable period.

"A little below the center of the right parietal is a circular perforation .25 inch in diameter, while on a level with the right zygomatic arch (which is lacking) is a double perforation formed by the intersection of two openings, each similar to the one just mentioned. These wounds are cleanly cut externally but show considerable shattering of the inner table, and probably were caused by antler points.

"In the right side of the frontal bone, close to the coronal suture, is an elongated, perforating wound with depression and splintering of the inner table.

"The wounds of the right side of the skull show no evidence of repair and evidently resulted in the speedy death of the subject."

Burial No. 241, a disturbance, had a bone pin near the skull, possibly an accidental deposit.

Burials Nos. 242 and 243, the former partly flexed to the left, the other in the same position but to the right, lay in a grave-pit facing each other, the knees interlocking. Near the skull of Burial No. 243 was a large fragment of antler, and an arrowhead or knife, of flint. Also near the skull but away from the other deposit were a bone awl and the jaw of a woodchuck (*Marmota monax*).

Burial No. 244, infant. At the neck and on the chest were shell beads, with which was a long tubular bead. At the head was a tube of bone, while another lay at the feet. These tubes, as stated in the introduction, are highly polished, each about 4.5 inches in length, and with three others found singly were with infants or young children. Near the pelvis were two hemispheres of asphalt in poor condition, with remains of discs of shell, heads for hairpins, doubtless a gift from someone possessing hair enough to have used them.

This little skeleton lay in a circular grave about 20 inches in diameter, extending 3.5 feet into the yellow sand. Two feet above the bones, in the same grave, was the skeleton of a dog.

Burial No. 246, a disturbance. On the tibia lay a pin of bone.

Burial No. 251, closely flexed to the right. At the neck and across both shoulders were shell beads.

On the middle of the thorax were scattered fragments of a winged stone of quartz (Plate XI, *B*), all of which was not found, though prolonged and conscientious sifting was done. Presumably, as in the other cases, this object had been ceremonially broken elsewhere. With the scattered fragments of stone was the butt of a netting needle, perhaps broken at the same time.

Burial No. 252, child, having shell beads and a bead of claystone at the neck.

Burial No. 253, adolescent, closely flexed on the back. At the neck were seven discoidal beads of shell, each about one inch in diameter.

Burial No. 254, a child. At the neck were shell beads.

Burial No. 255, closely flexed on the right. At the outer side of the right elbow was a rattle made from the shell of a box-tortoise, having in place pebbles much larger than were usually employed by the aborigines for this purpose.

Burial No. 256, closely flexed on the left. A portion of a lance or dagger, of flint, 3.3 inches in length, rested on the lower part of the chest.

Burial No. 258, closely flexed to the right. Above and around this skeleton and also Burials Nos. 266 and 267, were mingled bones, including three calvaria.

Burial No. 259, closely flexed on the left. This skeleton lay at the bottom of a pit extending into the yellow soil, the bottom of which was covered with a thin layer of charcoal immediately beneath the burial but not beyond it.

At the left knee was part of a sizer of gneiss (Plate X, *F*) and its needle of antler (Fig. 10, *D*). Protracted sifting failed to find the remainder of this sizer and presumably we have here another case of ceremonial breaking.

Burials Nos. 260 and 261. A skeleton closely flexed on the right had delicate bones and a skull resembling that of a woman. On the right arm, the face against the breast of Burial No. 260, was Burial No. 261, an infant.

Burial No. 262, closely flexed to the left. At the left side of the skull was a deposit of pointed implements of bone, and three claws of a raptorial bird.

Burial No. 263, partly flexed to the right. Encircling the pelvis, and probably on the belt, at one time, were beads made from the fresh-water univalve *Anculosa prærosa*. At the right side of the pelvis were two complete hairpins of bone, having heads made of asphalt and shell beads, shown in Plate XII. "A new use for beads," said Mr. Willoughby, on seeing them.

Burial No. 264, adolescent, closely flexed to the right. Shell beads and one small bead of claystone were at the left wrist.

Burial No. 265, closely flexed to the left, but without a skull. This burial lay under Burial No. 258, and near Burials Nos. 266 and 267, near which were disconnected bones, and while it is possible the individual may have lost his head in battle, it is more likely it fell off before burial and probably was present among the crania lying near these skeletons.

Burial No. 269, partly flexed to the right, also lacked the cranium, but here the cause was apparent, as a deeper grave (Burial No. 270) had intersected the one under description to the extent of the removal of the skull. Near where the cranium of Burial No. 269 had been, lay a flint knife.

Burial No. 272, closely flexed to the right. At the outer side of the right elbow, with a mass of asphalt¹ was a sizer of antler (Fig. 9, *A*). Back of the left shoulder was another sizer of antler (Fig. 9, *F*) and its netting needle (Fig.

¹ Doctor Keller writes: "The specimen marked 'Asphalt, Indian Knoll, Burial 272' contains less than 60 per cent. of mineral matter, and about 40 per cent. of asphaltum which is easily extracted with carbon bisulphide. The ash contains silica, alumina, lime, phosphoric acid, and traces of oxide of iron."

10, *F*), also a lancehead or knife more than 4 inches long, somewhat broken. Above the left shoulder was a smaller lancehead or knife. Across the thorax and lower, near the pelvis, were respectively, two bones of a dog.

Burial No. 273, infant, having at the neck some discoidal shell beads, others made of *Anculosa prærosa*, one bead of claystone .5 inch in diameter, five small fragments of marine shell, each with a perforation for suspension, a small fossil having a natural perforation, perhaps used as a bead, and two canine teeth of a bob-cat (*Lynx rufus*), each having a perforation in the proximal end.

Burial No. 280, closely flexed on the right. Shell beads were at the neck. Fragments of a large marine univalve, which possibly had been a cup, were at the lower part of the thorax.

Burial No. 281, closely flexed to the right. Shell beads made from an unknown species of *Anculosa*, and a large bead of jet were at the lower part of the right humerus. A quantity of red hematite pigment extended along the right upper arm. In the angle between the knees and the body was a rattle made from the shell of a box-tortoise, in fragments, as were nearly all found here. Under the left knee was a lancehead 4 inches in length.

Burial No. 283, a child. On the thorax, as though it had been suspended from the neck, was a molar of a wolf, perforated for suspension through each of the two roots and having, in addition, auxiliary grooves running longitudinally along the sides of each root.

Burial No. 287, partly flexed to the right. Transversely under the pelvis lay the skeleton of a dog, the head projecting on one side, the hind-quarters on the other. Near the right elbow was the shell of a tortoise containing pebbles, badly crushed.

Burial No. 290, infant, having shell beads at the neck, among which were two curved strips of shell of the kind already described as found at this place.

Burial No. 291, a child, had shell beads at the neck.

Burial No. 295, infant. At the neck were shell beads and a tubular bead of claystone.

Burial No. 296, already described as to form of burial. A lancehead 4 inches long, without a point, lay under the trunk. Another about one inch shorter was against vertebræ of the thorax. Near the skull was a netting needle in fragments, which has since been restored (Fig. 10, *A*), probably a ceremonial breaking which may have included the sizer, though none was found with the burial, which was carefully removed with a trowel.

On that side of the Knoll toward the river, where there had been some wash, we were informed Mr. W. F. Cundiff, son-in-law of Mr. Brown, the owner of the Knoll, had picked up an object which proved to be a beautiful, winged stone of flint, of exquisite shades and symmetry. This we obtained from Mr. Cundiff and illustrate on Plate XII.

We purchased from a resident of Paradise, which is opposite the Knoll as we have stated, an object apparently of claystone, having a deep, rounded



BUR. 263



BUR. 236



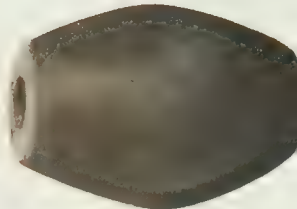
BUR. 263



BUR. 82



BUR. 34



BUR. 47

MLBAKER

ORNAMENTAL HAIR-PINS; BEAD OF CLAYSTONE; SHELL ORNAMENTS; BEADS OF JET; WINGED STONE OF FLINT. "THE INDIAN KNOLL." (FULL SIZE.)

notch at one end, at the bottom of which are two diagonal grooves, as shown in the detail accompanying the illustration (Fig. 19). Mr. Willoughby says he found this object to serve admirably as an arrowshaft wrench and that it may have been so used.

Mr. E. K. Williams, living about two miles from Paradise, Ky., possesses a bi-cave stone of silicious material, 4.75 inches in diameter and 2.8 inches across each of the hollowed portions. This stone, which is not entirely symmetrical, was, according to Mr. Williams's statement, found by his father on the property now occupied by the son. The stone was kindly submitted to us for examination.

"The Indian Knoll," though larger, in composition resembles a number of dwelling-sites farther up Green river, where shells are largely mixed with the dark soil. These sites are, in order going up: the Newton Brown Place, at Green River P. O., Ohio County; the Austin Place,¹ Butler County; the Rhone Place and the Deweese Place, Butler County.

These dwelling-sites, however, all investigated by us to some extent (except the Austin place, where the presence of numerous buildings stood in the way), so far as ascertained had much more solid and deeper deposits of shell than is that at the Indian Knoll. A well at the Deweese Place was dug through 12 feet of shell, it is said. At none of the places mentioned was soil beneath the shell reached by us. The burials found in our digging were widely scattered and had no artifacts accompanying them.



FIG. 19.—Arrow-shaft wrench. "The Indian Knoll." (Full size.)

HUMAN VERTEBRA TRANSFIXED BY A SPEARPOINT OF ANTLER.

By M. G. Miller, M.D.

The vertebra penetrated by an antler spearhead (from "The Indian Knoll," Ohio Co., Ky.) is the second of the lumbar series. The point entered the left intervertebral foramen between the first and second lumbar vertebræ, passed

¹ The reader will recall that a place of the same name below "The Indian Knoll" has been described in this report.

downward and across the spinal canal and pierced the right pedicle, the tip of the spearhead projecting an inch beyond the pedicle (Fig. 20). It is still firmly embedded in the bone.



FIG. 20. Human vertebra transfixed by a spearpoint of antler. "The Indian Knoll." (Full size.)

The right pedicle is completely separated from the body of the vertebra, while on the left side a fracture extends from the upper surface of the body downward through about three-quarters of the base of the corresponding pedicle.

The lower, posterior margin of the body of the first lumbar vertebra also is somewhat crushed by the pressure of the spearhead.

Death must have occurred soon after the wound was inflicted, as the bone presents no indication of repair.

The spearhead evidently was thrust into the side at a little distance from the spinal column and probably was covered by flesh when it penetrated the vertebra. Removal of the shaft then left the point concealed and beyond the reach of one who might wish to extract it.

The antler spearhead, unbroken and well-preserved, has a length of 3.9 inches and measures .8 inch across the base, which is unbarbed. The socket for the shaft has a depth of one inch and is .5 inch in diameter of opening. The surface presents longitudinal markings or facets, apparently made by a paring or scraping tool, while the apex has been rather abruptly pointed. The spearhead has been in no wise impaired by its passage through the bone, a fair indication of the effectiveness of points made of such material.

Though antler points are found from Maine to Arkansas,¹ human bones retaining them have been rather infrequently met.

¹ C. C. Willoughby, "Antler-pointed Arrows of the Southeastern Indians," *American Anthropologist*, N. S., vol. III, p. 431.

In Peabody Museum, Cambridge, is a human vertebra transfixd with an antler arrowpoint, from Turpin's Farm, near Madisonville, Ohio.¹ In this instance the point entered from the back, the tip of the arrowhead being embedded in the body of the vertebra.

In the investigation of Burial Ridge, at Tottenville, Staten Island, Mr. George H. Pepper came upon three associated skeletons, among the bones of which were numerous arrowheads of antler, bone, and stone. One antler point was found engaged in a rib.²

Mr. A. C. Parker, curator of the New York State Museum, in a letter mentions a skull found near the shore of Lake Champlain, opposite the village of Dresden, in which a long antler point had penetrated an eye-socket.

In a communication from Dr. C. L. Metz reference is made to finding a human sacrum pierced by an arrow- or lancehead of deer antler, in the aboriginal cemetery near Madisonville, Ohio. The point, about 2.5 inches in length, evidently had traversed the abdominal cavity and penetrated the sacrum, the tip projecting beyond the posterior surface of the bone.

The skull of Burial No. 240, "The Indian Knoll," as stated in the description of the remains, presents rounded perforations evidently made by antler points, but these presumably had been extracted before burial.

Instances of human bones transfixd by points made from other materials are more numerous.

The skull of Burial No. 172, "The Indian Knoll," as stated in the description of the burials from this site, presents an irregular opening about one inch in diameter in the anterior part of the right temporal bone. The margins indicate that the injury was caused by a force applied from without, while the lower edge shows a distinct notch. In the cranial cavity was found a flint arrowhead so rude in character that ordinarily it would be classed as a reject.

At Peabody Museum are:³ a skull from the aboriginal cemetery near Madisonville, Ohio, bearing the point of a flint arrowhead in the occipital part; a vertebra from Tennessee with a fragment of a flint arrowpoint embedded in it.

Mr. Parker refers to small, triangular, flint arrowpoints in a vertebra of an Indian skeleton found at Ripley, N. Y.

Dr. Harlan I. Smith,⁴ in his exploration of an aboriginal site in Mason County, Ky., found embedded in an os calcis part of a slender arrowhead of flint. Two lumbar vertebræ from another burial at this place show wounds caused by a similar point.

George G. Heye, Esq., of the Museum of the American Indian, Heye Foundation, New York, writes: "We have two or more skulls and a few bones con-

¹ Letter from Mr. C. C. Willoughby.

² Alanson Skinner, "The Indians of Manhattan Island and Vicinity," *The American Museum Journal*, vol. IX, No. 6, p. 149.

³ Mr. C. C. Willoughby in letter.

⁴ "The Prehistoric Ethnology of a Kentucky Site," *Anthropological Papers of the American Museum of Natural History*, vol. VI, Part II, p. 226.

taining points, all of which are of stone. The specimens are now packed away in a storage warehouse where they will remain until the new building is finished"

Wilson describes¹ from the collection of the National Museum: a skull from an aboriginal cemetery in Henderson County, Ill., which bears in the left squamosa a stone point of the drill type; a pelvic bone pierced by a flint point, and the head of a femur, possibly human, with a flint point engaged in it, both from a cave near Bowling Green, Ky.

The Army Medical Museum possesses a number of specimens.² A skull of a California Indian has a long, flint arrowhead embedded in the left orbit. Another from an Indian burial place in the same State has two stone points, one obsidian, the other porphyritic, in the right parietal bone. A lumbar vertebra penetrated by a small arrowpoint of white quartz is from an Indian mound in Dakota. In addition the Museum has several instances of human bones bearing arrowheads of iron.

The Museum of the Ohio State Archæological and Historical Society has: an os innominatum pierced by an arrowhead of flint; a similar bone with an arrow- or spearhead of flint thrust into the joint cavity; a skull from a grave in Miami County, Ohio, with a flint point embedded in it; and a skull pierced with a bone arrow.³

Dr. C. L. Metz, referring to human bones bearing arrow- or lanceheads, found in the aboriginal cemetery at Madisonville, mentions: a skull with a part of a flint arrowhead in the occipital bone (evidently the one now in Peabody Museum); the first and second lumbar vertebræ of a skeleton, penetrated by a triangular flint point; a rib transfixed by a similar point.

In the Museum of Anthropology, University of California, is a femur with a piece of an obsidian arrowhead embedded in the greater trochanter, from a shell-mound at Ellis Landing, Contra Costa County, Cal.⁴

MOUNDS ON THE ANNIS PLACE, BUTLER COUNTY.

On the property of Mr. W. T. Annis, who resides upon it, is the largest mound seen or heard of by us on Green river. This mound, of sandy loam, approximately square with corners rounded by time, has a flat summit-plateau, is 11 feet in height and about 110 feet in diameter of base. It stands immediately on the river bank.

A central hole, 12 feet square, reached a well-defined dark line in the soil at a depth of 6 feet 10 inches, on which was a fireplace—no doubt marking a period of occupancy. Twelve feet down the excavation came upon a distinct base of dark soil resting on undisturbed, yellow sand throughout, no grave.

¹ Thomas Wilson, "Arrow Wounds," *American Anthropologist*, N. S., vol. III, p. 513 *et seq.*

² Summary kindly furnished by Lieut. Col. C. C. McCulloch, curator of the Army Medical Museum. Interesting descriptions of most of these specimens are given in Wilson's paper.

³ William C. Mills, M.Sc., curator, in letter.

⁴ Dr. E. W. Gifford, in letter.

extending below. No trace of former burials was apparent in the mound, which doubtless had been domiciliary.

About 80 yards directly back of the larger mound, in a field that has been under cultivation, is a mound of sandy loam, 2 feet 8 inches in height and about 60 feet in diameter of base. The mound evidently has been plowed over and considerably reduced in height. A number of trial-holes carried to the base, in one instance came upon remains of a skull much decayed, and traces of other bones.

MOUND ON THE MARTIN PLACE, BUTLER COUNTY.

On the extremity of a ridge is a mound overlooking the river, on property belonging to Mr. J. W. Martin, who lives somewhat farther inland.

This mound, quadrilateral and having a top originally flat, has been much dug into for a long time and locally has a great reputation for containing human bones and "rocks," though there seems to be absolutely no history as to the discovery of artifacts. We were told of the removal from it of numerous slabs which had been used later in minor details of building.

The mound, 5 feet in height, had basal diameters of 115 feet and 90 feet, the summit-plateau being about 60 feet square. The mound probably was a residential one used later for interments, or possibly one constructed for burial purposes, as some low, flat mounds appear to have been.

Evidently burials had been very numerous in the mound, for when spaces were selected which showed no evidence of former digging, eight trial-holes all quickly came upon stone graves, one of which, however, in spite of our careful selection of spaces for investigation, proved to be a complete disturbance, while others had been interfered with to some extent.

It has been noted that the valley of the Cumberland river, in Tennessee, was the region where the regular stone box-grave was most frequently in use, and as one departs from that region variants in the form of the grave make their appearance. Details as to these variants are often so numerous and of such a character as to make exact description difficult, but when to this is added the fact that there has been disturbance among the graves, a clear recital of details is well nigh impossible. However, one can but do one's best.

Burials Nos. 1 and 2. Near the surface was what had the appearance of a pavement of small slabs evenly laid, but leaving inconsiderable spaces uncovered, as would of necessity be the case when undressed slabs were employed. This pavement, nearly quadrangular, was 5 feet 7 inches by 4 feet 3 inches in extent and was made of sandstone slabs, which variety of stone was the only one noticed by us in the mound.

At the southeastern corner of the pavement and incorporated with it, was a box-grave (Burial No. 1) containing the bones of a young child, much decayed. This grave, shown in diagram (Fig. 21, where relative positions are given, not all drawn exactly to scale) as having the covering slabs removed, had a neat flooring of slabs. The upper margins of the sides and ends, upright slabs, were

at the level of the pavement, the covering slabs of the grave being above the level and forming the only exception to the flat surface of the pavement. A part of the outer side of the grave continued beyond it, forming a portion of a

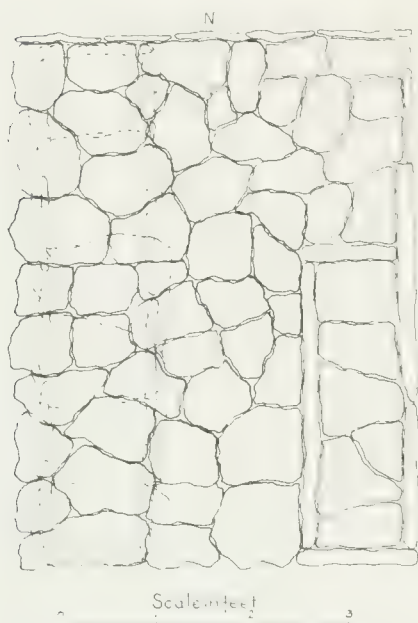


FIG. 21. Burials Nos. 1 and 2.
The Martin Place.

kind of curb present on the eastern and northern sides of the pavement, but not found by us on the southern and western sides. The eastern curb, however, which seemed to have been slightly disturbed or irregularly made at the northern end, reached the level of the pavement only, while that on the northern side projected 6 or 8 inches above it.

An interesting feature of the northern curb was that each upright slab rested on a rudely-oblong base apparently selected for the purpose, each slab seemingly having its own particular base, which in a rude way conformed to the lower ends of the upright slabs, which were roughly triangular, presenting a serrated appearance above the level of the pavement.

Extending below the western part of the pavement throughout its entire length was a box-grave (Burial No. 2) having sides, ends, flooring and top, of slabs, the top being about 6 inches below the pavement. No trace of bones remained in this grave.

Under no part of the pavement, except in the cases specified, were there burials or slabs.

This is the description of this interesting placement of slabs and its burials as found by us. It is well to bear in mind, however, in connection with it, that the placement was near the surface and in a mound where much digging had been done.

We think it not unlikely that the pavement may have been the resting-place of a skeleton, constituting a burial similar to one described by Fowke¹ as found in Ohio, and as encountered by us in eastern Tennessee,² though in the instances cited a curb surrounded the pavement, which possibly was the case here at one time.

Burials Nos. 3 and 4 (Fig. 22). Burial No. 3, a box-grave without flooring, having the sides diverging considerably, on which rested covering slabs whose size showed their extremities must have projected considerably beyond the sides of the grave before the outward deflection took place. The ends of the grave were upright. This grave, about 8 feet long and 4 feet wide, outside measurement, contained the skeleton of an adult, at full length on the back, very much decayed.

¹ Gerard Fowke, "Archaeological History of Ohio," p. 402, Fig. 128.

² "Aboriginal Sites on Tennessee River," p. 406, JOURN. ACAD. NAT. SCI. PHILA., vol. XVI

The head end of this grave abutted against a side of the foot end of the grave of Burial No. 4, a box-grave, 8.5 feet long by 3.5 feet wide, outside measurement, having no flooring. The sides and the ends were upright; the covering slabs did not project beyond them. The grave contained decaying remains of the skeleton of an adult extended on the back, the cranium represented only by the lower jaw, which rested on what had been the lower part of the chest.



FIG. 22.—Stone graves. The Martin Place. Burial No. 3 (to the reader's left) 8 feet long by 4 feet wide. Burial No. 4, 8.5 feet by 3.5 feet.

Two features of interest were noticed in connection with these graves. It seemed as if the makers of them had wished to confer a uniform appearance to them and had selected for grave No. 3 large covering slabs as an afterthought to project and to make the top of grave No. 3 about uniform in width with that of grave No. 4, which probably was the first to be built, the inside width of grave No. 4 being considerably greater than that of grave No. 3. If such was the design of the aborigines, they had succeeded, for when the soil was removed from above the graves they had the appearance of a single grave with an offset.

At the northeastern corner of grave No. 4, as shown in the diagram (Fig. 23), which is not drawn exactly to scale, was a small, triangular, compartment, not built within the grave proper but outside it, containing no bones and seemingly too small to have been used for burial purposes, though possibly the skeleton of a young infant may have been crowded into it.

It appeared to us that, in pursuance of the desire for symmetry to which we have referred, the aborigines had built this addition in order to bring out the end of the grave, which tapered somewhat, to the diameter of the remainder of the grave.

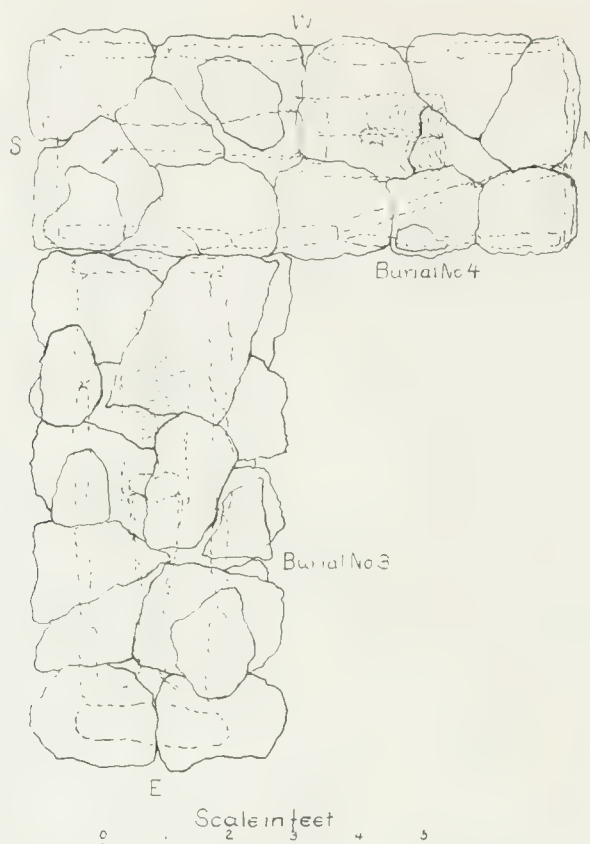


FIG. 23. Burials Nos. 3 and 4. The Martin Place.

At the northeastern corner of this small compartment a few stones were missing, evidently through a recent disturbance. In our diagram these stones are represented as in place.

Burial No. 5. This burial was contained in a grave 9 feet in length, nearly 4 feet in width, and 2 feet in height, outside measurement. The sides, some of whose slabs were very large, slanted inward as to their upper parts, giving a very uneven appearance to the covering slabs which remained, a few having been removed from one part of the grave by a previous digger. The upper part of the grave, from which these slabs had been removed, nearly approached the surface.

The grave had been floored with slabs, but the upright stone which presumably had been at one end (that at the other end being present) probably had been removed by previous digging, and the flooring at this point also was missing.

Throughout this grave, whose inside measurement ranged between 16 and 20 inches in height, were human bones in no anatomical order, though an effort clearly had been made to place the long bones longitudinally and horizontally.

Thirteen skulls, all much decayed, as were the other bones, were present. As to the discovery of artifacts, as is usually the case with stone graves, we had our labor for our pains, as the saying goes.

MOUND AND SITE ON THE CHERRY PLACE, BUTLER COUNTY.

On the property of Dr. E. A. Cherry, of Morgantown, Ky., on a hill, is a mound about one quarter of a mile back from the river, in a straight line. This mound, 3 feet 6 inches in height and 32 feet by 22 feet in basal diameters at the present time, seemingly had been greatly dug into before our coming, as quantities of masses of stone, evidently from it, lay in all directions on its surface. So numerous were these masses that it seemed to us more likely that the mound had been an ordinary stone mound of the kind so often found on hilltops, rather than one containing a large single grave.

On an adjoining field of the same property, under and around the home of the tenant occupying Doctor Cherry's place, evidently had been a cemetery of stone box-graves, traces of a number of which still remained. Four of the better-preserved graves examined by us were without covering and had been rifled but had the sides and ends still remaining.

MOUNDS NEAR LITTLE REEDY POINT, BUTLER COUNTY.

On the property of Mr. G. M. Taylor, who lives upon it, is a high ridge, one end of which, reached by a winding road, looks down upon the river. On this extremity of the ridge are two mounds near together, while two others but a short distance apart are about one hundred yards back along the ridge which, where the mounds are, is covered with light woods.

These mounds, which unfortunately had been thoroughly dug out previous to our visit, had each contained a single, large grave, judging from part of the contents of one mound not wholly scattered.

The mound in question, 21 feet in diameter, centrally had contained a stone grave 7 feet 10 inches in length and 3 feet 5 inches in width, inside measurement, built of slabs and masses of sandstone and of limestone, the masses in nearly every case showing flat surfaces which had been utilized in the construction of the grave, giving it interiorly a comparatively regular surface. Unfortunately one of the longer sides, which was almost perfectly even, could not be shown in the photograph (Fig. 24) owing to the presence of trees where the camera must needs have been placed to show it. The large block seen projecting from the side at the reader's left in the illustration, had not been originally placed as it now is, but owes its position to the roots of a neighboring tree, which have pushed it beyond the general line of the wall.

This interesting grave had not been constructed, the reader will note, as



FIG. 24. Stone grave, Little Reedy Point. (7 feet 10 inches by 3 feet 5 inches, inside measurement, depth 2 feet 3 inches.)

the box-graves were, with slabs and masses arranged on edge (with the exception of a large slab at one end of the grave which was so placed), but had been regularly built up from the yellow, undisturbed clay which served as a foundation, of slabs and blocks laid on their sides as in the case of walls, to a height of 2 feet 3 inches. Presumably this height, plus that of the covering slabs (which had been removed and lay on the sides of the mound) and the thickness of some soil above them represented the original height of the mound.

The largest of the covering masses was 3 feet in length by about 2 feet in width, not sufficient to have spanned the grave. Possibly the covering slabs originally were held in place by interior supports, perhaps of wood, as has been suggested was sometimes the case with some of the stone box-graves.

Within the grave a few fragments of human bones had been left by the diggers.

The remaining three mounds, one of which was larger than that described, one of about the same size, one smaller, had been so completely dug out that the single graves they probably had contained were represented only by scattered masses of stone.

INDIAN HILL, EDMONSON COUNTY.

This site, well known locally, is a table-land surrounded on all sides by a bluff, about one mile NE. from Brownsville, Ky. The site was carefully examined but did not seem to be covered with the usual layer of black soil, which possibly had washed away from so exposed a position. A few coarse arrowheads of black flint were found on the surface. Owing to the field being planted in wheat no digging was attempted.

CERTAIN ABORIGINAL SITES ON OHIO RIVER.

In the following list all mounds of any considerable size in the territory visited by us (namely, between the mouth of Ohio river and Evansville, Indiana) are included, and all dwelling-sites which seemed to be of any interest are described.

MOUNDS AND SITES.

Mounds and site on the Terrell Place, Ballard County, Kentucky.

Mounds at Mound City, Illinois.

Dwelling-site near Colvin Lake, Ballard County, Ky.

Dwelling-site near the mouth of Massac Creek, McCracken County, Ky.

Dwelling-site near Owens Ferry, Massac County, Ill.

Mounds and site on the Kincaid and Lewis Places, Massac and Pope Counties, Ill.

Aboriginal Cemetery on the Thirlkill Place, Livingston County, Ky.

Aboriginal Cemetery on the Davis Place, Livingston County, Ky.

Aboriginal Cemetery near Bay City, Pope County, Ill.

Aboriginal Cemetery on the Orr Place, Hardin County, Ill.

Mound near Murphy Landing, Posey County, Indiana.

MOUNDS AND SITE ON THE TERRELL PLACE, BALLARD COUNTY, KY.

Holloway is opposite Mound City, Ill. Following the road inland about three-quarters of a mile from Holloway, on the property of Mr. James R. Terrell, Kevil, Ky., are two mounds, formerly quadrilateral with flat tops, now greatly trampled and washed. One of these, 24.5 feet high, has a diameter of base of 173 feet E. and W. On the south side has been a causeway leading up to the mound, while on the north side is a causeway connecting the mound with the other one about 40 yards away. These causeways made impossible the determination of the diameter of the base of the mound northerly and southerly.

The second mound, 15 feet high and 172 feet N. and S., in diameter of base, has a frame structure upon it.

As these mounds are of vital necessity in times of high water, no digging on them was attempted.

In the same great field in which are the mounds are two ridges, on one of which are several humps. These ridges and humps, evidently made by the aborigines, had apparently been gathered from the rest of the field and piled, not deposited by the accretion of dwelling-site material, as very little debris was mingled with the clay composing them. One of the humps, extensively dug into by us, yielded neither artifact nor burial. Holes in the other ridge came upon, in one instance, a burial extended on the back, slightly more than 3 feet deep.

Pottery on the field was undecorated as a rule, though one fragment of thin ware was found, having a coating of crimson pigment, and another bore a design in relief, elliptical, possibly intended for an ear on an effigy vessel.

MOUNDS AT MOUND CITY, ILLINOIS.

Mound City, Ill., named after aboriginal high places formerly there, was visited by us, but the mounds, with the exception of one about 7 feet in height, had been removed to furnish material for the levee. There is no history of the discovery of artifacts during the demolition of these mounds, and the remaining one, we learned, had been dug into without discovery of relics.

DWELLING-SITE NEAR COLVIN LAKE, BALLARD COUNTY, KY.

This site, shown on our map of Mississippi river in this report, is about ten miles above Mound City but on the opposite side of the river. Colvin lake, about one-half mile back from the river, is itself part of a former course of the Ohio, but is now enclosed by land and called a lake, as it is the custom to do in such cases in the Mississippi valley and elsewhere.

On the border of Colvin lake, on the property of Col. W. H. Viets, of La Center, is a large aboriginal dwelling-site having much debris on the surface, including fragments of pottery but with few other artifacts. Near the end of a ridge on which the dwelling-house on the property stands, in a cultivated field,

is a slight rise, largely of sand, which is filled with burials and probably was the principal cemetery of the place, though doubtless scattered burials were made throughout the site. In fact considerable digging over parts of the remainder of the property came upon the remains of one infant.

When thirty-six burials had been taken from the rise digging was discontinued owing to the paucity and the inferior quality of artifacts with them.

These burials, thirty of adults and adolescents, six of infants and older children, showed that the form of burial mainly practised in the place was at full length on the back, though one adult skeleton was closely flexed on the back, and there were three regular, bunched burials, each of a pile of parallel bones with a skull. There was also a bunched burial made up of a mingling of bones including fragments of three skulls. There had been great disturbance in this cemetery, caused by intersecting graves.

The burials, none deeper than 2 feet, except in one instance where one lay in a narrow grave nearly 4 feet from the surface, were so easily reached and lay in such a favorable medium for the preservation of relics that it is unfortunate that artifacts had not been placed more numerous with them, and that such as had been deposited were not of better quality.

One burial had at the skull a flat mass of jet 9 inches by 6.5 inches by 2.5 inches; another had at the head two small earthenware pots, about the same size, each having a row of encircling knobs below the opening, while another burial had a pointed implement of bone near the head.

Burial No. 9, extended on the back, was without a skull in proper position, though one lay near the pelvis. On the lower part of the thorax was a shell gorget with some kind of a decoration, much encrusted and badly decayed. At the outer side of the right humerus was a slab of silicious material, 1 foot long, 4.75 inches in maximum width, about 1 inch in thickness, lying flat. A considerable depression in this slab indicated its former use as a hone or mortar. On it lay a long spike-shaped arrowpoint or drill, of flint. At the right hand of the burial were a chisel and three triangular arrowheads, all of flint. Near this burial was a small, undecorated, toy bottle of earthenware, but so much disturbance was evident in the neighborhood that one could not determine if the vessel belonged to this skeleton or not.

A burial of an adolescent, somewhat disturbed, had near it a small earthenware pot with two loop-handles; with the burial of a child was associated a very elementary effigy form, two knobs indicating eyes.

The skeleton of a child had a few discoidal, shell beads at the neck; near the head of the skeleton of an adult was a small mass of iron ore used as pigment; near the left leg of an adult skeleton stood a small, undecorated water-bottle.

An adult burial had at the skull a piercing implement of bone in fragments, a diminutive slab of sandstone, a mass of hematite about 1.5 inch by 1 inch by .5 inch, and a small mass of vesicular lava. A short distance from the skull was a water-bottle, undecorated, with wide mouth, more suited in size for a child than for an adult.

With the largest bunch burial were: a pot having two loop-handles and a rude, current scroll around the body, containing a musselshell in fragments, no doubt formerly used as a spoon; an undecorated pot having two loop-handles, inverted over a small undecorated bowl; a pot without decoration, having two loop-handles. One somewhat similar to the foregoing was with another bunched burial.

In the midden debris were several arrowheads and piercing implements of bone; also half of an effigy vessel representing a fish.

DWELLING-SITE NEAR THE MOUTH OF MASSAC CREEK, McCRACKEN
COUNTY, KY.

Near the mouth of Massac creek, on the property of Mr. J. D. McElya, living nearby, is an aboriginal dwelling-site of promising appearance, no doubt containing a large number of burials. After twenty skeletons had been removed without the discovery of an associated artifact, work was discontinued.

DWELLING-SITE NEAR OWENS FERRY, MASSAC COUNTY, ILL.

Near Owens Ferry, opposite Paducah, Ky., on property of Captain Brack Owen, of Paducah, is a dwelling-site into which twelve holes were sunk without encountering signs of interment.

MOUNDS AND SITE ON THE KINCAID AND LEWIS PLACES, MASSAC AND POPE
COUNTIES, ILL.

About six miles above Paducah, Ky., but on the Illinois side of the river, a mile inland from Kincaid Landing, is by far the most promising site seen by us on Ohio river, on which are seven mounds on the property of Mrs. T. M. Kincaid, and eight on the adjoining land of Messrs. T. and E. Lewis.

All these mounds were seen but not measured by us, as we were unable to obtain permission to dig them. According to our agent, a good judge in such matters, who examined the mounds more carefully than we did, their heights range all the way to 30 feet. Doubtless the smaller ones would be more productive, were any result obtained by digging into them.

ABORIGINAL CEMETERY ON THE THIRLKILL PLACE, LIVINGSTON COUNTY, KY.

On government land which formerly was part of the Thirlkill Place, on ground overlooking the river, in a restricted area of sand, had been a number of stone box-graves with flooring of limestone and of sandstone.

All the graves had been somewhat disturbed by cultivation, but the ten best preserved—eight extending easterly and westerly, and two northerly and southerly—were examined by us. The skeletons, badly decayed, had not been placed uniformly; for example, some in the graves running E. and W. having the heads to the east, others to the west.

No artifacts were found with the burials, nor is there a history of any from this place.

ABORIGINAL CEMETERY ON THE DAVIS PLACE, LIVINGSTON COUNTY, KY.

About one mile below the union of Cumberland river and the Ohio, on the property of Mr. C. B. Davis, of Smithland, Ky., on the first high ground near the dwelling-house of the estate, have been numerous stone graves, slabs and parts of graves remaining. Many graves are reported to have been found on the place during the digging of a shallow pond for hogs. While no entire grave was found by us, the former presence of a box-grave with a flooring was indicated. There is no history of the discovery of artifacts.

ABORIGINAL CEMETERY NEAR BAY CITY, POPE COUNTY, ILL.

On the verge of tableland overlooking the river, about one-half mile NW. by W. from Bay City, on property belonging to Mr. R. H. Dunning of that place, is a group of stone graves of the box variety, having floors. The tops of these graves have been plowed away and piles of slabs of sandstone and of limestone from graves of the group lie around. The owner recalls no artifact having been found there in the last thirty years.

ABORIGINAL CEMETERY ON THE ORR PLACE, HARDIN COUNTY, ILL.

This place, of which Mr. David Orr is owner, is a short distance below Elizabethtown, Ill. It formerly has had a considerable stone grave cemetery of the box variety of grave, on the high ground just above the river. Squarely across the road, which is a short distance back from the margin of the high ground, are rows of slabs on edge, being the sides of stone graves and presenting a curious appearance in such a place. Such graves as we found had been disturbed, though bones remained in some. With one skeleton was a knife of flint, somewhat more than 3 inches in length.

The discovery of other graves while plowing back in the field is reported, but the field is planted in alfalfa and investigation was possible only in a few bare spots, in which nothing was found. There is no history of the discovery of artifacts in the graves on this place.

MOUND NEAR MURPHY LANDING, POSEY COUNTY, INDIANA.

About twelve miles by water below Mount Vernon, Ind., on the property of Mr. J. L. Faulhaber, of Elwood, Ind., is a mound, 16.5 feet in height, which has been quadrilateral but is now of somewhat irregular outline, its diameters of base being 290 feet ENE. and WSW., and 188 feet NNW. and SSE. On the flat top of the mound are various wooden structures. We attempted no digging in this mound, which no doubt was domiciliary, as a high place like this is of great importance when the river is in flood.

ADDITIONAL INVESTIGATION ON MISSISSIPPI RIVER.

As we have stated elsewhere, the territory along the Mississippi covered by us this season lay between Memphis, Tenn., and Cairo, Ill., where the Ohio joins the Mississippi, though no digging was attempted by us in certain sites within about thirty miles of Memphis, which had been explored in a previous season.

The mounds and sites of any importance visited by us this year are as follows:

MOUNDS AND SITES.

Mounds near Fulton, Lauderdale County, Tennessee.
 Aboriginal dwelling-site at Hale's Point, Lauderdale County, Tenn.
 Mound on the McCoy Place, Dyer County, Tenn.
 "The Neeley Mounds," Dyer County, Tenn.
 Mounds on the Markham Place, Lake County, Tenn.
 Mounds on the Bandy Place, Pemiscot County, Missouri.
 Mounds on the Davis Place, New Madrid County, Mo.
 Mounds on the Hunter Place, New Madrid County, Mo.
 Mounds near New Madrid, New Madrid County, Mo.
 The Campbell Mound, Fulton County, Kentucky.
 Mounds on Pinhook Ridge, Mississippi County, Mo.
 Mound on the Chaney Place, Hickman County, Ky.
 Mounds on the Turk Place, Ballard County, Ky.
 Mounds on the Edwards Place, Ballard County, Ky.
 Aboriginal dwelling-site at Wickliffe, Ballard County, Ky.

MOUNDS NEAR FULTON, LAUDERDALE COUNTY, TENN.

On Chickasaw Bluff, overlooking the river, on the property of Mr. T. F. Moore, of Fulton, Tenn., are two mounds and a remnant of another, about three-quarters of a mile below the town. There are said to be other mounds nearby, which we did not visit.

The largest mound, about 14 feet in height and 100 feet across its circular base, is covered with a grove of locust trees which it was desired to preserve.

The other mound, about 50 yards from the first, had been under cultivation and its dimensions evidently had been modified. Its height was slightly less than 10 feet; the diameter of base about 90 feet.

An excavation, 12 feet square, was carried to and beyond a well-defined baseline which was reached at a depth of 12 feet from the summit of the mound. No burial was encountered and no sign of a grave was discernible in the base, which was of so marked a character that any space filled in with material other than that of the base could not have escaped our notice. The mound, in which were various thin layers, presumably indicating short periods of occupancy, evidently had been a domiciliary one.

ABORIGINAL DWELLING-SITE AT HALE'S POINT, LAUDERDALE COUNTY, TENN.

The well-known aboriginal site at Hale's Point, where Mr. Hall spent considerable time making part of the fine collection of pottery now in the possession of the Davenport Academy of Sciences, Davenport, Iowa, has been washed away by the Mississippi, sharing the fate of Pecan Point, Ark., somewhat below it on the river, where much investigation was carried on by the Bureau of American Ethnology, and later by ourselves.

A field on Hale's Point, separated from the river by a narrow patch of woods, belonging to Mr. S. C. Forsythe, living nearby, is covered with about one foot of comparatively recent alluvial deposit which, while enriching the place from an agricultural point of view, somewhat interferes with the discovery of aboriginal burials which are present in the field. The site has been prodded over and dug by the Indian Crowfoot, who has done so much work in the St. Francis river region, Ark., and elsewhere, with the view of discovering Indian pottery for the market.

Our investigation at Hale's Point was carried on during three days in the field described, on a low, short ridge parallel to, and a few yards from, the woods. During this time water from the river in flood was seeping into our digging, making our work hard to carry on to advantage.

Fifty-four burials were encountered, as follows: of adults, 33; of adolescents, 8; of infants and children, of which one was an urn-burial and two others partaking of the nature of urn-burials, 13.

The adult and adolescent burials, some of which had been disturbed to some extent by intersecting graves, were extended on the back, with one exception, four of the skeletons having the feet crossed at the ankles.

A skeleton found in the utmost disorder near a refuse pit presumably had been disturbed when the pit was dug.

No burial except the disturbance, which was somewhat more, was deeper than 4 feet 4 inches from the present surface, which, as stated, is on a comparatively recent deposit about one foot in depth. The deeper burials, below the level of the river at the time, were removed with difficulty from regular bogs of mud and water.

Skeletal remains at this place were in fairly good condition, eleven skulls with most of their skeletons, one of these including a united fracture of a left radius, being obtained for the National Museum.

Reminiscent of the urn-burials found at Hale's Point by Mr. Hall, our Burial No. 4 consisted of an earthenware pot, undecorated, 14 inches in height and about the same in maximum diameter, having two solid projections for handles on each of two opposite sides.

In this vessel were most of the bones of a child, on the bottom being the pelvis, ribs, phalanges, one os calcis, but no vertebræ. Laid across irregularly, but in the same general direction, were the bones of the arms. Above these again were the long bones of the lower extremities, parallel, in an oblique position,

their upper ends resting against the side of the vessel. Supported by these and by the side of the vessel was the skull. Over the containing pot had been an inverted bowl, without decoration, having two small projections for handles, which was badly crushed, the base of it having fallen in upon the bones, which did not fill more than half the lower vessel, part of which also had given way under the pressure from above.

Burial No. 5, the bones of an infant, having over the skull and thoracic part a fragment of a pottery vessel, of irregular outline, 9 inches by 10.5 inches, approximately, from beneath which the pelvis and legs projected.

Burial No. 12, adolescent. At the left shoulder were two elongated arrow-points of flint and one of antler, while near the skull was what seemed to be a mass of red pigment in the mud and water in which it lay. Accompanying this was an astragalus of an elk, carefully smoothed on the sides seemingly for use as a die in some kind of game.

Burial No. 14 had red hematite at the feet.

Burial No. 21, adolescent, had at each side of the head a shell ear-plug of the bracket-shaped variety, having near the end of the shank a perforation to furnish additional security by attachment. The ends of these ornaments lay under the skull, showing that the flat part of the ear-plug had been against the outer side of the lobe of the ear. At the neck of the skeleton was a single bead of shell, of irregular outline, about .75 inch in diameter.

Burial No. 29 had, at the left of the skull, a pottery bottle, and on the middle of the trunk a miscellaneous assortment of objects in a pile as follows: several arrowflakers of antler; fragments of handles of antler, with which were two incisors of the beaver, which presumably had been in the handles; four long, piercing implements of bone, one very imperfect; a pebble, probably a smoothing stone; a small celt of shale; six flakes of flint; a small mass of agate; two rude chisels of flint, 4 inches and 7.75 inches in length, respectively; two rude implements or weapons of flint, perhaps blunt knives; thirteen arrowheads, knives, and spearheads, of flint, the longest about 4 inches, nearly all more or less imperfect.

Burial No. 32, adolescent, had two vessels at the head, and at the neck an irregular fragment of shell having a perforation, which may have been part of a gorget.

Burial No. 34 had on the sacrum two small rings of bone, very fragile, broken on removal.

Burial No. 48. In addition to a bowl near the head there was, with this burial, at each side of the skull, a number of bone pins much decayed and broken.

Burial No. 51, an infant, had the skull covered with a fragment of a large vessel, the concave side downward.

A number of burials had only earthenware vessels associated with them. Thirty-two vessels were met with at Hale's Point, one apart from human remains. The vessels with burials, always near the head at this place, never more than

three together, are representative of the general run of the pottery of that part of the middle Mississippi region included in Tennessee, which pottery, taken together, is inferior to the earthenware of Arkansas north of Arkansas river, which is also in the Middle Mississippi region.

One of the bottles found by us at this place has a representation of the aboriginal idea of a frog, which is endowed with a tail. In relief on one side are shown the head and two legs, and, on the other, the remaining two legs and a tail. Another bottle belongs to the human effigy class, the face of the figure being in relief on the neck of the bottle. These vessels are shown in Fig. 25.



FIG. 25. Vessels of earthenware. Hale's Point, Tenn. (Heights 8.75 inches and 6.75 inches, respectively.)

There are also bowls having handles representing heads and tails of fish; bowls with beaded margins, and pots having upright fillets around the neck. The usual proportion of coarse, undecorated ware (which the investigator always finds unduly great in this region) also was present.

The use of color appears but twice: a bowl has traces of red pigment, and a small bottle has parallel, vertical bands of red and white alternating. The effect produced by these efforts to decorate in color is disappointing, the ware being coarse, shell-tempered, and without the slip, or coating, required on such material for a successful application of painted decoration.

In the soil, apart from burials, were: a small celt seemingly of igneous rock; four pottery discs; a number of bones of a bison (*Bison bison*); an effigy of the head of some animal, from a large pottery vessel; a well-preserved implement of bone, flat at one end, perhaps used in basketry.

MOUND ON THE MCCOY PLACE, DYER COUNTY, TENN.

On the McCoy Place, said to be twenty-five miles up Forked Deer river, is a mound in a cultivated field, in view from the water, on property of Mr. A. D. Burks, living nearby. The mound, considerably plowed away, is 5 feet in height and 50 feet in diameter of base, which is irregularly circular.

A central excavation, 12 feet square, showed the mound to be of sandy clay, and while without a marked base-line, to be upon undisturbed clay at a depth of 4 feet from the top.

At a depth of 18 inches, with traces of a skeleton at length, was part of a pot having had a scanty and rude scroll decoration.

About 3.5 feet in depth, perhaps placed with a skeleton no longer remaining, for no bones were found, was an undecorated pot of most inferior ware, which offered slight resistance when a shovel cut through it. This vessel, somewhat verging on the bottle in form of body, is rather elongated and constricted toward the opening, on each of two opposite sides of which is a loop-handle.

Near the base of the mound, separately, were several rude balls of clay, perhaps used in the Indian hand-game. A similar ball came from one of the holes dug by us in level ground near the mound.

THE NEELEY MOUNDS, DYER COUNTY, TENN.

On the property of Mr. Sterling Fowlkes, of Dyersburg, Tenn., are the Neeley mounds, so-called locally, all near together in woods, about 1.5 mile in a straight line northeastwardly from Booth Point landing. There are two mounds and a number of low ridges or rises, the latter, so far as could be determined, being due to wash of water and not to agency of man, though some had been lived upon by the aborigines and used as places of burial to a limited extent. Our investigation of this place was interfered with by stormy weather and by back-water from the rising river.

MOUND A.

This mound, of sand, like the neighboring mounds and rises, was 2.5 feet high and 45 feet across the circular base. On it, as elsewhere on this site, was a small deposit of clay, probably from recent overflows of the river. This small mound proved to be of considerable interest in that it furnished, like the site at Hale's Point below it on the river, examples of urn-burial, a custom not widely practised by the aborigines of Tennessee.¹

About centrally on the base of the mound, which was 2 feet 9 inches from the surface, was a group of four vessels practically in contact one with another. Three of these were pots of comparatively thin, shell-tempered ware that fell in fragments on removal. All were undecorated save for the presence of two loop-handles, one on each of two opposite sides, if this could be called a decoration.

¹ See our article on urn-burial in "Handbook of American Indians."

The principal of these vessels was 15 inches in height, 16.5 inches in maximum diameter, and 13 inches across the opening. Within the pot were some of the small bones lying on the bottom, a skull resting against the side above them, and fragments of long bones around the skull. Many of the bones in this pot showed marked effect of fire, including the skull, which went to pieces when removed. Other fragments of bone, however, were without evidence of the action of heat.

Another pot, 12 inches in height, 15.5 inches across the widest part, and having an opening one foot in diameter, illustrates the spirit of economy that was strong in many of the aborigines. The bottom of the pot, missing through breakage preceding the time of interment, had been replaced by a platter or basin arranged below the missing part. This basin was itself defective, a part of the rim being absent. On the basin was coarse, incised decoration, consisting of lines and circles.

This composite receptacle, illustrating in a way that two wrongs can make a right, contained the bones of an adult, showing no trace of the effect of fire. In the basin, on the bottom, were the pelvis and small bones. Next, the long bones had been placed diagonally in the vessel, and on the slant of these rested the skull which, like all crania found at this place, dropped to pieces when removed.

The third pot, 11.5 inches high, 16.5 inches in greatest diameter, 12 inches across the opening, contained small bones on the base, on them resting the skull, over which were the long bones placed obliquely.

A singular feature of this burial, adult like the rest, was that the bones and fragments immediately on the base of the pot clearly showed the action of fire, while none of the bones above them did so, thus indicating that the vessel with its contents had been placed over a fire for a time. The ceremony, however, must have been performed apart from the site of the urn-burial, as no sign of fire was apparent in the neighborhood.

The fourth vessel, without shell tempering, of inferior ware, as was practically all the earthenware, was a cup-shaped bowl having had the effigies of a small head and tail extending from the rim at opposite sides, which had been broken off and lost prior to the interment. Three incised circles surrounded the upper part of the bowl, curving under the places where the head and tail had been. This vessel, of medium size, contained no burial.

Surrounding the group of vessels was a deposit of bones and fragments of bones in no order whatever, including six skulls. This deposit, an indiscriminate mixture of bones, some showing the mark of fire but more being without it, was from 4 to 5 inches in thickness and 5 feet 9 inches by 5 feet 4 inches in extent, irregular with rounded corners, having from one of them an extension 2 feet wide and 18 inches in length. Below and between the pots were no bones, though we have included the space occupied by the vessels in giving the dimensions of the deposit.

In the soil near the pots was a small, rude effigy of earthenware, representing the head of a bird, perhaps a toy, as it displays no broken area as would be the case did it come from a vessel. Near this was a ring of earthenware somewhat more than 1.5 inch in diameter, resembling a section of the neck of a bottle, but showing no irregularity of the margins. The ware also gives evidence of an even effect of heat inside and out; the object probably was made as it now is, for some purpose.

In the bone deposit was part of a rude pipe of earthenware, having a base on which to rest, the bowl and the orifice for the stem forming the upper part of what was hardly more than a lump of burnt clay.

Also in this mound were encountered (as explained, our investigation was not complete) four unenclosed burials. One, traces of a skeleton extended, lay 2 feet below the surface. At the head were a flake of flint; a pebble; a small mass of hematite paint; a trowel of earthenware, mushroom-shaped; part of another one; a mass of jet 3 inches by 3 inches by 1.25 inches. With these were two pots, each of less than one quart capacity and having two loop-handles. One of these, having a rude attempt at decoration in the way of lobes, was inverted and contained an earthenware trowel having a small part missing, and a mass of jet of about the same size as the other. These masses seem to have been subjected to considerable wear or intentional polish, one being especially smooth.

The three other burials from this mound were cremations, deposits of burnt and calcined fragments of bones not far from the surface, one 2 feet by 30 inches in area and 6 inches in thickness, having parts of three skulls; the other two somewhat smaller, and evidently individual burials.

MOUND B.

Mound B had been used as a refuge for cattle in flood time, and was much trampled and spread. Its height was 4 feet; the diameter of its circular base, 82 feet. A distinct base-line was noticed 3.5 feet from the top of the mound.

What probably constituted most of the original area of the mound was covered with numerous trial-holes by us, resulting in the discovery of twelve burials (two being of children), excluding many fragments of human bones scattered throughout. The burials, all badly decayed, were in depth from a few inches from the surface to a central grave in the base of the mound, 6 feet 3 inches by 2 feet 10 inches, and extending 1 foot 4 inches into underlying sand beneath the mound, previously undisturbed.

In form the burials were extended on the back, flexed, and of the bunched variety; also several fragments of human bones affected by fire were encountered.

The following burials were accompanied with artifacts:

Burial No. 1, a bunched burial having one skull and seven femora, in addition to other bones, had associated a flint blade, leaf-shaped, 6.5 inches long, 2.1 inches in maximum width, and a small mass of lead sulphide.

Burial No. 3, extended on the back, had at the right of the skull a cup-shaped vessel from which, presumably, a head and tail of an effigy had projected; also a mass of oölitic hematite iron ore, having a deep depression in which rested a lump of red hematite showing flat surfaces where grinding had taken place—here was evidently a kind of paint cup with its contents. At the right of the pelvis were traces of a rattle of tortoise or turtle shell, having contained pebbles.

Burial No. 7, a child, had with it an undecorated bowl and fragments of a rude, human-effigy vessel.

Burial No. 8, a child, also had associated with it parts of a rude, human-effigy vessel, and fragments of a coarse pot having had two loop-handles.

The burial in the grave was without artifact.

Four of the rises at this place were dug into to some extent, one showing no sign of burial in the raw sand, another having fragments of uncremated bones, being part of a burial apparently extending under a large tree.

In another rise, 14 inches from the surface, was a deposit of carbonized bones, including a single skull. Also were encountered the unburnt remains of an infant's skeleton, 30 inches down, covered by the base of a large vessel, the fragment being about 9 inches square.

In the fourth rise investigated were two small deposits of cremated remains, probably individual burials, and another, 2 feet by 7 feet in extent, beginning near the surface and slanting down to a depth of 1 foot 8 inches.

Near the surface was a central, cremated deposit 4 inches to 6 inches in thickness, including eight skulls, crushed when found, though represented apparently in all their parts. This area, oblong with rounded corners, 7 feet long by 2 feet wide, approximately, could not be definitely defined, as fragments of burnt bones were scattered here and there in the soil adjacent to it. With this deposit was a fragment of a bowl of thin and fairly good ware, and also a diminutive pot containing material in small fragments, of which Doctor Keller writes:

"I have made a careful qualitative and rough quantitative analysis of the black material from Neeley Mounds. It turns out to be a silicate resembling hornblende. It contains over 60 per cent. silica, about 20 of alumina and 11 oxide of iron. Also a few per cent. of lime and magnesia (rather more of the latter than of lime), and traces of manganese and alkalies. Ordinary hornblende contains less of both silica and alumina, and more of lime and magnesia. Like hornblende it is very hard, gives a gray powder, and melts before the blowpipe, giving slightly magnetic globules, and is only slightly attacked by acids. It is not distinctly crystalline, however. I think it is perfectly safe to call it a silicate of the hornblende or augite type."

In connection with this deposit of cremated remains was a feature not noted in the other cremated burials at this place. With the bones, mainly above them, to a limited extent, was sand reddened by fire. Below the bones was no

trace of heat. It was evident, then, that the cremation had been performed elsewhere and the reddened sand gathered up with the bones.

MOUNDS ON THE MARKHAM PLACE, LAKE COUNTY, TENN.

Going in a short distance from the river, about one-half mile below Bass Landing, one reaches the property of Mr. A. E. Markham, of Tiptonville, Tenn., on which is a mound about 7.5 feet in height, covered with recent graves, and five remnants of mounds. These remainders, which have been under cultivation for a considerable time, are in no case more than 3 feet in height.

Two of these, having heights respectively of 2 feet and 2 feet 9 inches, and diameters of 50 feet each, were investigated by us, holes 8 feet by 10 feet and 8 feet by 12 feet being carried to the base.

Centrally in the smaller excavation, beginning at the base and extending 2 feet into the underlying clay, was a grave 3 feet 4 inches wide by 8 feet long, containing the remains of a skeleton at full length, having at the right hand a coarse, undecorated pot in fragments, and at the outer side of the left shoulder a pipe of claystone, of the monitor type, also greatly broken, which, put together and slightly restored, is shown in Fig. 26.

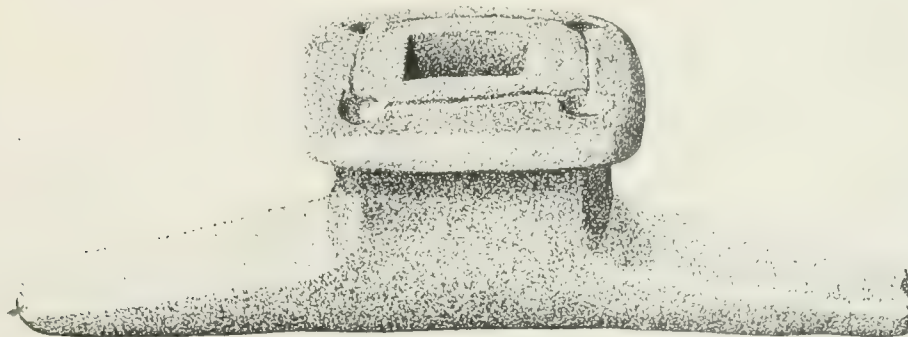


FIG. 26. —Pipe of monitor type. The Markham Place, Tenn. (Full size.)

In the smaller mound (having, however, the larger excavation, necessitated by finding a grave away from the center of the base) was a grave 10 feet 2 inches long by 6 feet 7 inches wide, having a depth of 2 feet 8 inches below the base of the mound. This grave was not entirely cleared owing to the pouring in of water, the river being in flood. So far as determined, no artifacts accompanied a burial, which lay in a kind of quicksand.

MOUNDS ON THE BANDY PLACE, PEMISCOT COUNTY, MO.

On the western side of Jim Ellis Cypress, a swamp about 1.5 mile WSW. in a straight line from Stewart, a settlement, are, on the Bandy Place, now belonging to the Hon. William Hunter, of Benton, Mo., thirteen mounds forming an irregular line along the swamp. Adjoining Mr. Hunter's property at the upper end are five other mounds, and on adjacent properties just below the

Bandy Place thirty mounds spreading over the fields were counted by us. In fact an aggregation of mounds is said to continue down the Cypress and even into Arkansas.

All the mounds examined by us, many of which have been under cultivation, have had circular bases, and none exceeded 7 feet in height, which was exceptional, though in woods beyond the places visited by us some of the mounds are said to be larger than those we saw.

Three mounds never under cultivation, in woods on the Bandy Place, were selected by us for examination. The mounds, respectively 4 feet 7 inches, 4 feet 5 inches, 3 feet in height, had each a diameter of somewhat more than 40 feet. All were of clay differing in shade from the underlying, undisturbed ground, and thus had base-lines easily distinguishable.

In the largest mound a hole 8 feet by 10 feet was carried to the base, while excavations 8 feet square were put down in the others.

In each instance, centrally in the base, a grave was reached, the largest being 9 feet 3 inches in length by 4 feet 6 inches in width and extending 2 feet below the base into the underlying soil. The other graves were somewhat smaller.

In each grave were faint traces of bones and of teeth, indicating a burial at length. No artifact of any kind was found, though great care was devoted to the search, the graves being dug out with a trowel, as it is our custom to do.

MOUNDS ON THE DAVIS PLACE, NEW MADRID COUNTY, MO.

About 2.5 miles in a northerly direction from the settlement known as Stewart, on property of Mr. W. E. Davis, of Point Pleasant, Mo., adjacent to Double Bridges, a well-known crossing, and following the bank of Open Bayou, is a group of twenty-three mounds, most of which have been long under cultivation. These mounds range in height between 2 feet and 5 feet and are from 35 feet to 50 feet across their circular bases. There is no history of the discovery of artifacts or of bones during cultivation, and none of the mounds seem to have been dug.

Two of these mounds on fallow land were selected for investigation.

Mound A, 4 feet 9 inches in height, diameter 50 feet, proved to be of clay dry and hard when an excavation 10 feet square was carried to the base. Nothing was found in the body of the mound, but at the central part of the base was a grave having a length of 7 feet 8 inches, a width of 3 feet, and extending about 1 foot below the line of the base, which was 5 feet 7 inches from the top of the mound. On the bottom of the pit were decayed remains of a skeleton, at full length on the back, the head ENE.

Mound B, slightly smaller than the other, was similarly investigated. No grave or burial was encountered, nor was the presence of a pit below the base discovered. The composition of the mound was such that the determination of a pit would have been difficult, and it is very likely that a sub-basal burial in a shallow grave, which was not found, had decayed away.

MOUNDS ON THE HUNTER PLACE, NEW MADRID COUNTY, MO.

In a cultivated field about 2 miles in a westerly direction from the town of Linda, Mo., on property belonging to the Hon. William Hunter, of Benton, Mo., whose courtesy to the Academy we already have had occasion to mention in this report, is a mound slightly more than 4 feet in height and about 70 feet across its irregularly circular base. This mound has been much trampled by cattle, and to add to its unsymmetrical appearance, a considerable hole, remaining unfilled, had been dug into one side of it. An excavation carried down between recent burials yielded nothing in the way of aboriginal interments or artifacts.

Another mound on the same property, said to be filled with recent burials, was not visited by us.

MOUNDS NEAR NEW MADRID, NEW MADRID COUNTY, MO.

The group of mounds on this famous site near New Madrid, on property of Hon. L. A. Lewis, of that place, was reached by us by tying our steamer about one mile below New Madrid, at the foot of Church road, and following this highway about 1.5 mile inland, where the mounds are in full view.

The group consists of a large mound and, all in sight from one another, a small mound of the domiciliary class, presumably, only a few yards from the large mound, and eight remainders of mounds with circular bases, in a field in whose cultivation they are included. This field borders the two larger mounds which have not been under cultivation.

The principal mound, originally quadrilateral, no doubt, whose sides about face the cardinal points, is somewhat more than 17 feet in height. Its diameters of base are, N. and S., 255 feet, and 200 feet E. and W. The diameters of the summit-plateau, in the same directions, respectively, are 170 feet and 120 feet.

The neighboring domiciliary mound is 7 feet in height. Its sides are greatly worn and its basal measurements would be hard to determine. On its summit-plateau and all over that of the great mound are many modern burials, some of whose head-stones are of very recent date. Digging into these mounds seemed out of the question, and judging from their shape, we suffered but little disappointment at the deprivation.

Across the greater mound a trench had been made about E. and W., the original depth of which cannot now be determined. At present it is about 5 feet deep. It is said to have been made in 1858 with the aid of slaves driving mules hauling scoops, and that enough pots were found "to fill a museum." The soil around the mound (itself of clay) is sandy and readily prodded and dug, and we are strongly of the opinion that collections of pottery taken from cemeteries in the level ground, and perhaps from the low mounds of the group, have been, in the course of years, credited to the large mound.

We learn that for years the site has yielded nothing in the way of Indian relics during its extensive cultivation.

In spite of the plowing in progress during our visit, we arranged to put down some exploratory holes here and there in low remainders of mounds and in a ridge forming part of the site, but found neither bone nor artifact. Doubtless the furor for pot-hunting at this place in the past, and constant cultivation since, have completely cleared the site of all the relics it formerly contained.

The settlement of New Madrid is particularly mentioned by Major Forman,¹ who went down the Ohio and Mississippi in 1789-90. At that time there was danger from the Indians along the Ohio. From New Madrid, Mo., to Bayou Pierre, sixty miles above Natchez, Miss., was no settlement along the Mississippi.

Shortly before reaching New Madrid, Major Forman had guests at dinner on his boat and had provided a large piece of fresh beef, "enough and to spare." Three Indians who had come aboard were invited to share the repast, which they no doubt appreciated. At the close of the meal one of the guests, perhaps enlivened by some stimulant, though Major Forman does not say so, took his fork and pitched it in a way to take hold and stand upright in the meat that was left. The Indians, always prone to ceremony and no doubt considering this a ceremonial act incumbent on well-bred persons after a repast, and not wishing to be wanting in courtesy to their host, each hurled his fork into the meat, leaving it planted therein.

THE CAMPBELL MOUND, FULTON COUNTY, KY.

About six miles westward from Hickman, Ky., on the property of Mr. T. M. French of that place, is the Campbell mound. This mound, formerly quadrilateral with a summit-plateau, is 18 feet in height and 225 feet by 160 feet in diameters of base. The remains of a causeway, now largely plowed away, is evident on one side of the mound. As this mound is a refuge in time of flood, the tenant on the property was not willing to have trial-holes put down in the summit-plateau, where the soil seemed dark and there might have been superficial burials.

Near the mound were two slight rises of very restricted area in the cultivated field in which the mound stands. We were permitted to put down eight trial-holes in these, five of which, in one of them, yielded nothing.

The remaining three holes, dug into the other rise, came upon two burials, as follows:

Burial No. 1, 2 feet 4 inches from the surface, was a deposit of calcined fragments of human bones, roughly circular, about 1 foot 3 inches in diameter and 5 inches in thickness. With these were fragments of sheet-copper showing the effect of fire, presumably parts of an ornament.

This deposit of cremated bones had been placed on a fragment of a very large vessel of earthenware. In places on this large sherd other fragments of pottery had been deposited, making, here and there, a double thickness.

¹ Narrative of a Journey down the Ohio and Mississippi in 1789-90. By Maj. Samuel S. Forman. Cincinnati, 1888.

Nine inches below the pottery was the bottom of a concave fire-place on which was charcoal. The surrounding earth showed the effect of fire. Here and there in the soil between the base of the fire-place and the large fragment of earthenware above it, were fragments of calcined bone, but far too few in number to be termed a deposit. It seemed as if the cremation might have taken place on the fire-place and the fragments of calcined bones been gathered and placed in the pottery receptacle, leaving some of them still scattered in the ground.

Burial No. 2, 3 feet 2 inches deep, was a bunched burial composed of the bones of one skeleton. Alongside this burial was an undecorated vessel of lenticular shape, possibly a rude attempt at a shell-form. In this vessel were some fragments of bones having belonged to a young infant. The vessel, however, was far too small to have contained the skeleton of even so young an infant as the bones found would indicate, and cannot be considered to have been an urn-burial. The remaining bones were not found, and we think it likely that the skeleton of the infant, with the exception of such parts as may have fallen into the vessel, was cut away when the bunched burial was interred, the infant's burial, in this event, of course, having preceded the other.

In the soil near the surface, apart from human remains, was a large fragment of a vessel, the remainder of which apparently had been plowed away. This vessel, originally a bottle, the body consisting of four lobes, had been coated with red pigment. This is the farthest north that we have found earthenware giving evidence of such excellence of design and coloring.

MOUNDS ON PINHOOK RIDGE, MISSISSIPPI COUNTY, MO.

On Pinhook Ridge, on the western side of Teefo Pond (we spell the name as it is locally pronounced), drained by Pinhook Bayou, about three miles in a straight line WNW. from the lower end of Wolf Island chute, is a group of five mounds. These mounds, forming an irregular circle, are on the property of Mr. W. C. Russell, of Charleston, Mo.

Mound A, the largest of the group, oblong with extensive summit-plateau, has been frequently used for protection of stock in times of overflow. Height, 18.5 feet; length and width of base, respectively, 239 feet and 181 feet.

Mound B, 25 yards S. from Mound A, oblong with rounded corners, has been under cultivation for a number of years. Height, 6.5 feet; length of base, 152 feet; width of base, 122 feet. Trial-holes in the summit-plateau were without return.

Mound C, also oblong with summit-plateau, 60 yards SE. from Mound B, had been under cultivation. Height, 5 feet; length and width of base, respectively, 131 feet and 114 feet. A number of trial-holes yielded only a small, undecorated bowl of coarse ware, having two holes together on two opposite sides for suspension.

Mound D, 75 yards NE. from Mound C, circular as to the base and probably

originally without summit-plateau, though recent use has caused some flattening. Height, 14.5 feet; diameter of base, 90 feet.

Mound E, 22 yards NW. from Mound D and 90 yards E. by S. from Mound A. Height, 7 feet; diameter of the circular base, 87 feet. The presence of buildings on this mound prevented investigation.

Extending from the side of Mound E in a NW. direction is an irregular ridge about 270 feet long, 102 feet wide, having a maximum altitude of 6 feet, almost entirely covered with buildings.

Trial-holes put down in various parts of the area surrounding the mounds failed to find artifact or burial.

MOUND ON THE CHANEY PLACE, HICKMAN COUNTY, KY.

About two miles in a straight line eastwardly from the lower end of Wolf Island, near Little Obion river, on property of Mr. J. W. Chaney, living upon it, is a mound with summit-plateau in which are numerous burials of recent date. Height, 11 feet 4 inches; diameters of base, 120 feet and 135 feet.

MOUNDS ON THE TURK PLACE, BALLARD COUNTY, KY.

On the estate of the late Mr. J. W. Turk, Bardwell, Ky., about 1.5 mile in an easterly direction from the lower end of Island No. 1, are three mounds which were courteously placed at our disposal by Mrs. Turk. These mounds have been plowed over for a number of years and are considerably modified in shape.

Mound A, westernmost, running about N. and S., has a flat top and is somewhat less than 11 feet in height. Its basal measurements are: length, 182 feet; width, 134 feet. The plateau in the same directions is 115 feet and 64 feet.

Mound B, of which the western end almost adjoins the northern end of Mound A, extends about east and west and consists apparently of two mounds united by a ridge slightly lower than the mounds themselves, which are entirely distinct from Mound A. The basal length of the mound, that is to say the ridge and its two extremities, is 283 feet; the width of the western end, 104 feet; that of the eastern end, 120 feet. The dimensions of the summit-plateau in corresponding directions, respectively, are 200 feet, 36 feet, and 40 feet. The height of the eastern end is 8 feet, and that of the western end, 13 feet.

Mound C, about 36 yards east of Mound B, is 36 feet across its circular base; its height is about 6 feet, though its base, the original surface of the ground, was but 4 feet from the summit of the mound.

A central excavation 12 feet square was carried to the base of this mound. Eighteen inches down were fragments of an object of wood copper-coated, whose original shape is not determinable.

About 1.5 foot distant from this object, with no bones in association, though of course a burial may have been there, were the fragments of an undecorated water-bottle with wide mouth. Apparently originally inverted in the mouth

of this bottle was a small, undecorated bottle having a neck in the form of a truncated cone. The ware of both these bottles, which was without shell-tempering, was of fair quality and had borne a high polish originally.

About 20 inches down in another part of the excavation was a burial extended on the back.

In the field surrounding the mounds are humps and ridges that have been plowed over for a long period. Trial-holes in these came upon midden debris but no burials.

At the Turk Place we obtained from a boy who said he had found them together on the Allen Place nearby, three implements of flint, probably hoes. These objects, the longest of which is about 8.75 inches, the others slightly less, are each about 3.25 inches in width, have rounded, unground edges, and are without the polish that one sometimes observes on flint implements that have seen use in cultivation of the soil. All are on one face flat transversely, somewhat concave longitudinally, and on the other face convex transversely and longitudinally—a shape fitted readily to enter and displace the soil.

MOUNDS ON THE EDWARDS PLACE, BALLARD COUNTY, KY.

About one mile east from the head of Island No. 1 and from the mouth of Mayfield creek, on high table-land, on property of Mr. J. P. Edwards, who lives on the extensive estate, are two mounds of clay but a few feet apart, the larger 62 feet across its circular base, with a height of 6 feet 3 inches.

An excavation 12 feet square showed the former surface of the ground to be but 5 feet 2 inches below the top of the mound. No burial was encountered in the body of the mound, but commencing at the dark base-line was an oblong grave-pit 8 feet 2 inches by 3 feet 6 inches in size, extending 3 feet 3 inches into the hard, underlying clay.

Every part of the contents of this grave was carefully removed with a trowel without the discovery of any artifact or bone—not even so much as the crown of a human tooth. The grave, cut into dense clay, had served as a tank, holding moisture, its contents being mud while the remainder of the mound and the surrounding underlying clay was solid. Probably long-continued wet had aided in the complete destruction, through decay of the skeleton which the grave at one time must have contained.

A hole 12 feet square, sunk in the smaller mound, which was less than 2 feet in height and about 50 feet in diameter, yielded no return.

A low mound much plowed away on another part of the Edwards Place was carefully dug into by us, but seemed to have been built as a place of domicile. In the soil was what probably had been the handle of a tool. This object is of antler, hollowed at one end as if for use as an arrowhead, but greatly curved at the other end.

In a field adjoining the Edwards Place, having some fragments of flint on the surface, a number of holes failed to find burials, but came upon, in one in-

stance, a handsome celt of flint, nearly flat on one side, convex on the other, having a gracefully rounded cutting edge, highly polished on each side. Length 6 inches.

ABORIGINAL DWELLING-SITE AT WICKLIFFE, BALLARD COUNTY, KY.

This site, locally celebrated, is at the town of Wickliffe, the property of the Wisconsin Chair Co., of Port Washington, Wis. Careful digging over this site failed to find artifact or burial, though there is history of objects having been found there.

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